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September/October 2015

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The Great Irish Famine

New York's First Seaport

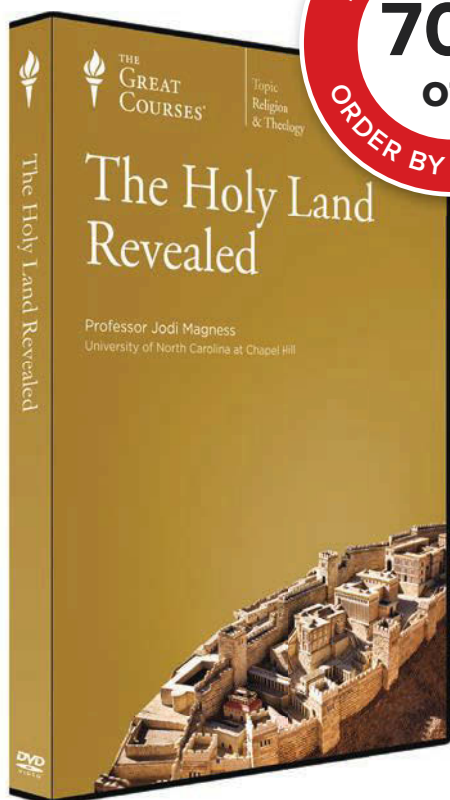
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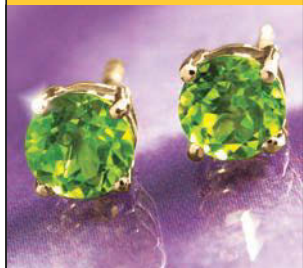
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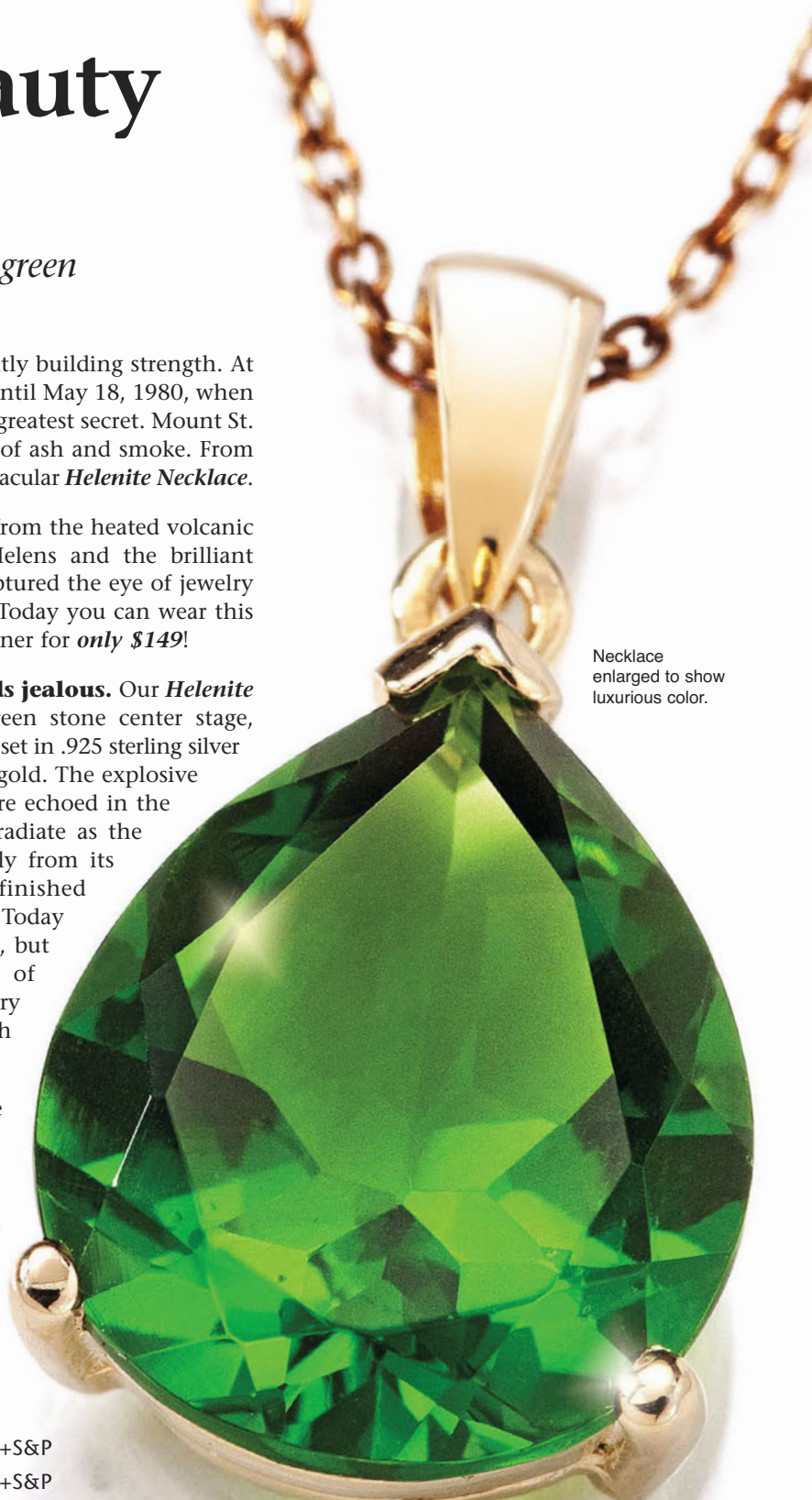
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Writ Large and Small

The monumental mid-first-century A.D. Domus Aurea, residence of the Roman emperor Nero, once encompassed not just sumptuously decorated palatial structures, but also vineyards, farmlands, and forests. For nearly 1,500 years, the massive property lay abandoned, eventually absorbed and covered over by the Eternal City. In "Golden House of an Emperor" (page 37), journalist Federico Gurgone tells us of the dramatic steps archaeologists, landscape architects, and conservators are taking to document and preserve this extraordinary testament to power and artistry constructed during the early years of the Roman Empire.

Colima figurine, western Mexico



"Reclaiming Lost Identities" (page 48), by journalist Traci Watson, offers a view of history on a far more human scale—the discovery of a paupers' graveyard in the city of Kilkenny, containing the burials of nearly a thousand victims of Ireland's Great Famine. Under pressure to complete their work before the dead were reinterred, researchers closely examined both the cemetery and the bodies, and have begun to reveal some of the stories of how these forgotten men, women, and children lived and perished.

Quinhagak, Alaska, a small village just inland from the Bering Sea, is the setting for "Cultural Revival" (page 26), by senior editor Daniel Weiss, which tells the story of centuries of internecine warfare among the indigenous Yup'ik people, and the suppression of their practices by Moravian missionaries. As a result of climate change, countless artifacts dating to this period are now emerging along the shoreline, and archaeologists, in concert with the Yup'ik, are racing to save to the relics even as they confirm oral accounts of a strife-filled past.

New York City's dynamic past is the subject of "New York's Original Seaport" (page 32), by contributing editor Jason Urbanus. South Street Seaport, located along Lower Manhattan's eastern shore, was the busiest port in the United States in the eighteenth and nineteenth centuries. Now archaeologists working there are uncovering evidence of construction techniques and daily life, allowing them to trace the extraordinary growth of New York as an economic powerhouse.

While certainly compelling in appearance, the 2,000-year-old figurines found throughout the western Mexican states of Jalisco, Colima, and Nayarit have remained a mystery. Online editor Eric A. Powell, in "Mexico's Enigmatic Figurines" (page 44), reports on the work of researchers who are applying innovative techniques to these beloved depictions of humans and animals and exploring what they can tell us about their makers.

And don't miss this issue's "Letter From England" (page 52), by journalist Kate Ravilious, in which archaeologists examine thousands of examples of medieval graffiti that have been hidden—virtually in plain sight—since they were inscribed on church walls in the Middle Ages.

Claudia Valentino

Claudia Valentino
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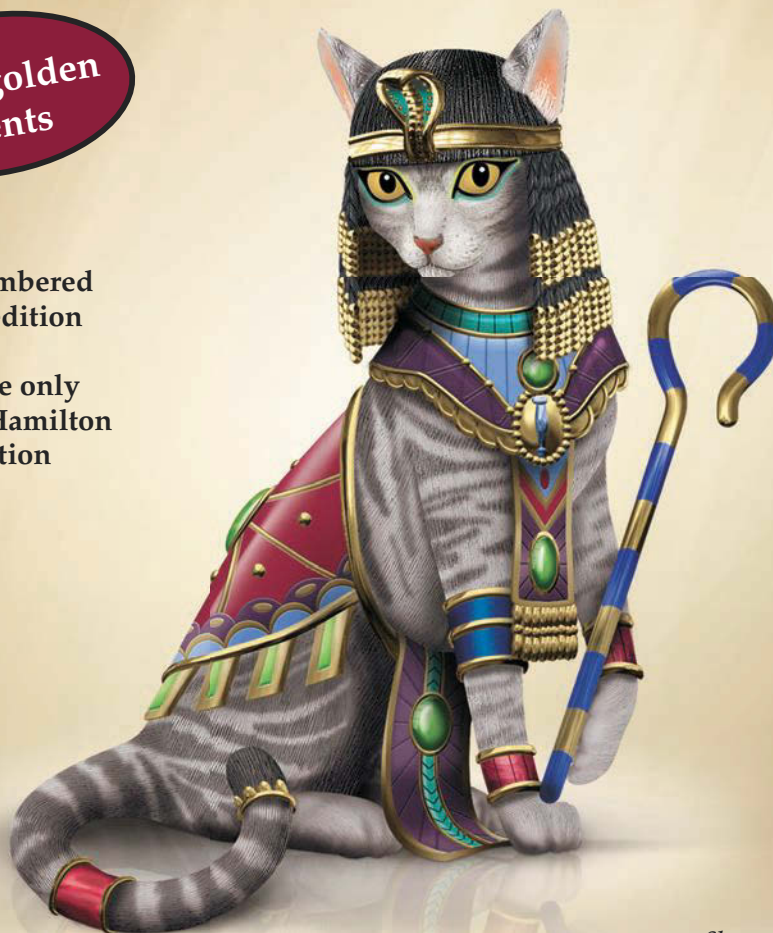
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Encounters with the Past

Long after the moment when archaeological artifacts are unearthed in the field, museum exhibits employ those finds to offer the experience of discovery and a deep sense of the human past to visitors from around the world. Curators work with exhibition specialists to develop engaging ways to tell the story of each artifact: how it was made, what it was used for, and its cultural significance. A recent visit to Scandinavia as lecturer on an Archaeological Institute of America tour gave me the opportunity to experience contrasting approaches to illuminating the past in two of the most important museums in the region, the National Museum of Denmark in Copenhagen and the Swedish History Museum in Stockholm.



Viking buckle

The landscapes of Denmark and Sweden are rich in visible archaeological remains, including extensive fields of prehistoric burial mounds, impressive Bronze Age rock art, and fortified sites of the Iron Age and Viking period. Preservation of organic materials is often exceedingly good, so visitors may view wonderful examples of wooden coffin burials, bog bodies, prehistoric textiles, fishing gear, wooden tools, and even complete boats.

The Copenhagen and Stockholm museums present evidence to showcase events ranging from the initial peopling of the region as the ice sheet that covered Scandinavia melted at the end of the last Ice Age, to the time when farmers, with a new way of life, adapted to these northern climes. They exploited abundant sources of flint to make fine polished axes, exported widely at the time, that have much to tell us today. Spectacular Bronze Age artifacts, including swords, spears, *lurs* (massive trumpets), numerous finely crafted personal adornments, and vessels made in gold, speak to increasing sophistication. In the Iron Age, new tools were developed and used by blacksmiths and carpenters. The Viking Age produced rich assemblages of silver and gold ornaments, as well as objects for everyday use, all clues to Viking power and reach.

In Copenhagen, the emphasis is on the artifacts themselves, all curated with the intention of creating a palpable and informed connection with the past. Cases are filled with impressive arrays of stone axes, cascades of amber amulets and beads, assemblies of bronze daggers and swords, and Viking hoards. The Stockholm museum has chosen a different approach, with a focus on individuals and their lives. These “biographies” are derived from burials that have been studied using many different scientific techniques. Each museum, in its way, succeeds in informing the present by bringing the rich past to life. I hope that you, too, will have an opportunity to visit them.

Andrew Moore

President, Archaeological Institute of America

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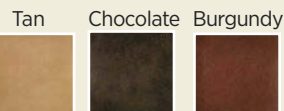
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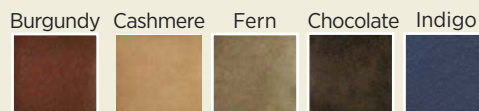
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A Reminder of Home

On “Juneteenth” (June 19), I opened my July/August 2015 issue of the magazine to a lengthy article about my hometown, Hampton, Virginia (“Letter from Virginia: Free Before Emancipation”). Hampton calls itself the oldest continuously English-speaking city in the United States and celebrated its 400th anniversary in 2007. Juneteenth is a loosely observed holiday, honoring the Emancipation Proclamation and the anniversary of the abolition of slavery in Texas on June 19, 1865—the last state to do so following the end of the Civil War.

Hamptonians have history in abundance, and the Butler fugitive slave law is part of that. It is reported that the first reading of the Emancipation Proclamation to the “contraband” Hamptonians was outside Fort Monroe underneath an oak tree. That tree is still alive, known today as the Emancipation Oak, and is lovingly cared for on the campus of Hampton University.

Oddly enough, I didn’t realize that the Contraband Camp was so far away from Fort Monroe. I had assumed it was just outside the fort for safety reasons. Now I know that the reason for the distance, about two miles, was the readily available building material and open land left behind when the town was burned.

ARCHAEOLOGY welcomes mail from readers. Please address your comments to ARCHAEOLOGY, 36-36 33rd Street, Long Island City, NY 11106, fax 718-472-3051, or e-mail letters@archaeology.org. The editors reserve the right to edit submitted material. Volume precludes our acknowledging individual letters.

The photos of Hampton are as familiar to me as the back of my hand. I worked less than a block from the apartment complex excavation site pictured. And while I understand that Fort Monroe was essential to the formation of the Contraband Camp, the photo on page 64 is not part of that campsite. It is inside Fort Monroe, near the casement prison cell of the Confederate president Jefferson Davis following the war.

I’m now very homesick for my old hometown, and will be until I can visit again.

Jane M. Weaver
Kenner, LA

Horse Sense

Your article on the importance of horses to humans was timely (“The Story of the Horse,” July/August 2015). A four-legged phenom with an archaeological name had people everywhere conversing with total strangers at the bus stop, in line at the bank, or at the grocery. What started back in May at the Kentucky Derby proceeded through to Baltimore in the mud, and then, in June, American Pharoah won the Triple Crown of horse racing. The crowd went wild, and so did the bookies. This will definitely be something that will be remembered for a long, long time. What a horse!

Patricia Leonhardt
Louisville, KY

Fan Mail

I recently renewed my subscription to ARCHAEOLOGY when writing checks for other nonprofit groups and mistakenly sent in much more than even

a two-year subscription. Now that my subscription runs until November/December 2019, I was pleased to read what I call your “gold standard” July/August 2015 issue. This issue was jam-packed with excellent articles from all over the world, proving the global reach of your readership and contributors. From the cover story on how the horse has changed history to the excellent article on the search for the philosopher’s stone in modern-day Turkey, from the missing island of the Maya in Guatemala to sick days in ancient Egypt, these articles are testimony to why I read ARCHAEOLOGY as someone interested in globalization and cultural awareness. Cheers to the work that you do to educate your readership on the mysteries of the past and on what these lessons can teach us about ourselves today and in the future!

G. Jason Goddard
Winston-Salem, NC

Pagans, Plural

In “Off the Grid” (July/August 2015), Malin Grunberg Banyasz states that the monumental arch known as Heidentor is also called “Pagan’s Gate.” In truth, the two names are the same: *Heiden* is German for “heathens” or “pagans,” and *Tor* is German for “gate.” Accordingly, the apostrophe in the English translation should appear after the final *s*, thus, “Pagans’ Gate.”

Avie Gold
Brooklyn, NY

Correction

The ostrakon on page 39 of the July/August 2015 issue was inadvertently shown upside-down.



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From the Trenches

LATE-BREAKING NEWS AND NOTES FROM THE WORLD OF ARCHAEOLOGY

Bronze Age Ireland's Taste in Gold

Gold has long played an important role in human societies. Its color, malleability, and resistance to corrosion have given it unequalled desirability for personal ornamentation and currency. In mainland Europe, the earliest evidence of goldworking dates back to more than 6,500 years ago in Bulgaria. For Ireland and Britain, it dates to about 2500 B.C., when early Bronze Age Irish craftsmen made great strides in metallurgy and demonstrated extraordinary skill in the production of gold artifacts.

By hammering gold into thin sheets and then forming it into objects such as sun disks, beads, oval plaques, and *lunulas*, or crescent-shaped neck ornaments decorated with geometric motifs, they created what were to become the most iconic gold artifacts of the early Irish Bronze Age (2200–1800 B.C.). Some 100 lunulas have been discovered by archaeologists, with more than 80 from Ireland alone, and much more early Bronze Age gold has been unearthed in Ireland than in nearby countries. Experts theorized, until recently, that Ireland was not only a center of gold production, but also, perhaps, a source of its unprocessed ore.

A recent study led by Christopher Standish from the University of Southampton has employed new scientific methods to analyze the provenance of Bronze Age Irish gold. His findings are beginning to overturn long-held assumptions. “Our

lack of understanding of where the gold came from that was used for the manufacture of impressive ornaments found in Ireland has been a significant gap in our understanding of the Bronze Age in general,” he says. “Identifying which sources were exploited is vital if we want to recognize patterns of gold procurement, trade, and exchange, all of which help generate a fuller understanding of pre-historic societies, their economies, and the interactions between different groups.”

Standish's team conducted lead-isotope and major-element analyses, which measure concentrations of tin, silver, and copper, on more than 50 early Bronze Age gold artifacts to match their elemental signatures to gold sources in Ireland. Surprisingly, the composition of the manufactured gold products

did not match any known Irish gold sources, even though there are a number of locally accessible deposits. This could suggest that Irish Bronze Age communities were exploiting a currently unknown gold source or one that no longer exists. However, Standish's analysis also compared the Irish objects with known gold deposits in Britain, France, and Iberia. The likely origin of Bronze Age Irish gold, it turns out, was Cornwall, in southwest England, a region known for exporting tin at the time. “This suggests that southwest Britain would have been an extremely important region during the Bronze Age, as local populations would have had the ability to control the supply of two of the key materials in use at this time,”



Gold lunula and disks, Ireland



Panning for gold in Ireland

explains Standish. The study indicates that during the late third millennium B.C., trade networks existed between Ireland and southwest England, with unprocessed gold ingots from Cornwall

being exchanged for Irish goods and resources, principally copper.

But why would Irish communities go to the trouble of importing gold when they had local deposits available?

Standish suggests that it might be due to the allure of objects from distant foreign lands. Imported gold would have demonstrated the prowess of an Irish chief—his ability to procure a precious resource from a faraway land—and the foreignness of the gold itself may have given it magical properties. “Gold sun disks and lunulas have both been linked to ideas of sun worship,” says Standish. “When discussed in terms of Bronze Age belief systems, it is easy to see how Irish societies would have preferred to make these objects out of an exotic, mystically charged material, which perhaps helps explain why local sources of gold may not have been desired.”

—JASON URBANUS

OFF THE GRID

On a broad hilltop in the heart of Tallahassee, Florida, is Mission San Luis, a site with a deep history involving the Apalachee Native Americans and Spanish missionaries. In the mid-1500s, Hernando de Soto visited Anhaica, the capital of the Apalachee, an Indian nation so prominent that mapmakers bestowed its name on distant mountains: the Appalachians. In 1656, the Apalachee chief agreed to move his people a few miles away to Mission



Council house reconstruction

San Luis, the capital of Spain's settlements in western Florida. There, Spanish friars baptized thousands of the Native Americans. Amid conflict between the Apalachee, other Native American groups, the Spanish, and the English, the mission was destroyed in 1704.

According to Grant Stauffer, a graduate student at Texas State University, archaeologists consider Mission San Luis unique because,

unlike St. Augustine, Spain's capital in eastern Florida, the village offered a unique cultural mash-up, where Spanish settlers, priests, and soldiers lived and worked side by side with Apalachee families. “The site is also one of few, if not the only, archaeological sites where a ball court was unearthed in North America,” he adds, referring to the ceremonial courts so prominent in Mesoamerican sites.

The site

Unlike the grid that dominates St. Augustine, Mission San Luis was laid out using the traditional circular pattern of Native American towns of the region. Covering 60 acres, the site included the Spanish garrison, the central plaza/ball court, a monastery, and the surrounding village. Few remains of these buildings exist today, but the site has been reconstructed on the basis of archaeological finds. Two decades of fieldwork provide Mission San Luis with one of the largest and most diverse collections of seventeenth-century Spanish and Apalachee materials, including nearly a million artifacts.

The primary ceremonial and political center of the Apalachee capital was the council house, which has also been reconstructed, a circular building designed around a central fire,

considered one of the largest Native American ceremonial structures in the southeast. In the circular ball court, which features a ceremonial ball pole,



the Apalachee played a stickball game tied to political succession. The myth surrounding the game, which was eventually abolished by the Spanish, is considered the oldest recorded myth in North America.

While you're there

Tallahassee's rolling hills, classic architecture, and tree-lined streets have the flavor of the Old South. At Lake Jackson Mounds, one can see two mounds made by the ancestors of the Apalachee, with even older examples at the nearby Letchworth-Love Mounds. Visitors can also spend a day exploring the Maclay Gardens, especially in the spring, when the dogwoods and azaleas are in bloom.

—MALIN GRUNBERG BANYASZ

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Roman owl brooch, Denmark

A Rare Bird

Danish archaeologists investigating the settlement of Lavegaard on the island of Bornholm have uncovered an unusual and exquisite owl-shaped fibula. The 1.5-by-1.5-inch Roman brooch, which dates to the first through third centuries A.D., was discovered by metal detectorists working with the Bornholm Museum. The bronze owl is inlaid with enamel disks and colored glass, which were used to create the enormous orange-and-black eyes. Decorative enameled fibulas are rare in such remote areas of northern Europe, with most concentrated in Roman frontier forts along the Danube or Rhine. This valuable personal item was likely brought back to Bornholm by a local mercenary who had served along the frontier, or was perhaps a gift from a wealthy Roman visiting the island.

—JASON URBANUS

Atacama's Decaying Mummies

The world's oldest mummies aren't found in Egypt, but in the sands of Chile's Atacama Desert. The oldest dates to an astonishing 5000 B.C., and even the youngest are nearly 5,000 years old. But since the moment they were excavated, they've been undergoing changes that even millennia in the ground didn't bring about.

The mummies are kept in climate-controlled conditions at the Archaeological and Anthropological Museum of San Miguel de Azapa in Arica, but archaeologist Marcela Sepulveda of the University of Tarapacá recently noticed that their skin was turning black and gelatinous, sure signs of decay. "I wanted not just to study the skin degradation, but also to understand what the agent of degradation was," she says. So Sepulveda enlisted microbiologist Ralph Mitchell of Harvard University to do DNA testing and chemical analysis to

identify the microorganisms and chemical processes involved.

The work revealed that, while the mummies have been decaying for at least a decade, the process seems to have accelerated, perhaps as a result of climate change, despite the museum's climate-control systems. "The climate in this region has changed from cool and dry to warm and damp, and the increased humidity has caused microbes that are common to all of our skin, but usually get washed off, to grow

and damage the mummies' skin," says Mitchell. Sepulveda also wonders whether increased agriculture in the region might be affecting the humidity around the museum.

The researchers are concerned about the museum's mummies—and those yet to be found. "I think it's a critical question," says Mitchell. "What happens if you find another cemetery full of mummies?"

—JARRETT A. LOBELL



Mummy, Arica, Chile



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Bronze Age Traveler

Egtved Girl's burial



Egtved Girl's belt plate



Coffin of Egtved Girl upon discovery in 1921, Denmark



Since her remains were discovered in 1921 near the town of Egtved, Denmark, almost 3,300 years after she died at around 17, the young woman was thought to have been a local, and became known as the “Egtved Girl.” But new research has undermined this assumption.

Based on the strontium isotope signature of one of the girl's first molars, which was fully formed by age four, a team led by Karin Frei of the National Museum of Denmark has determined that she could not have grown up on the Jutland Peninsula, where Egtved is

located. Instead, she was most likely raised in the Black Forest region of southern Germany, some 500 miles away. There were well established ties between the two areas at the time, and the researchers believe the girl was sent to marry a chieftain in Jutland to further the alliance.

Strontium isotope signatures from the girl's hair and fingernail pro-

vide a detailed record of her travels in the last two years of her life. During this period she appears to have moved from her homeland to Jutland, back to where she grew up, and then to Jutland once again shortly before she died. “This tells us that people in the Bronze Age really moved around,” says Frei, “not only men, but women as well.”

—DANIEL WEISS

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Wreck of *Rising Sun*, Lake Michigan

Great Lakes Shipwreck Spotting

Each spring, once the ice has melted and the chilly waters of Lake Michigan run clear, the history of the Great Lakes becomes visible—to those able to fly over it. As part of a routine patrol, guardsmen from the U.S. Coast Guard snapped photos of a few of the lake's hundreds of wrecks. Posted online, the haunting photos generated hundreds of comments and dozens of news stories—as well as help in identifying them. Pictured here is *Rising Sun*, a 133-foot-long wooden steamer that ran aground in 1917. (For more on the maritime heritage of the Great Lakes, see “Shipwreck Alley,” January/February 2015.)

—SAMIR S. PATEL

Early Parrots in the Southwest

Scarlet macaw



whose natural habitat is 1,000 miles away on the Gulf of Mexico. Scholars had assumed that long-distance trade became important only during the period when Chaco's power was greatest, from A.D. 1040 to 1110. But now a team has dated the macaw bones and found that some were imported as early as A.D. 900. “I was very much surprised,” says American

Museum of Natural History archaeologist Adam Watson, who helped organize the dating. “I, along with everyone else, assumed the trade networks with Mexico didn't become important until Chaco expanded. Now we have evidence that control over trade and political power were being consolidated long before then.”

—ERIC A. POWELL

In the prehistoric American Southwest, trade with distant Mesoamerica was a source of power and prestige that could make or break a ruler. Within the massive multistory buildings at New Mexico's Chaco Canyon, for instance, archaeologists have discovered exotic goods from Mexico, such as cacao and the remains of 33 scarlet macaws,



Macaw skull, Chaco Canyon, New Mexico

The Red Lady of El Mirón

A team of archaeologists scoured El Mirón Cave in northern Spain starting in 1996 and found abundant remains of prehistoric people, primarily the Magdalenians, hunter-gatherers who lived across Western Europe at the end of the last Ice Age. But it wasn't until 2010, when they investigated a narrow space behind a large limestone block, that the cave began to reveal its greatest secret: a significant portion of the skeleton of a Magdalenian woman who had died around 18,700 years earlier at the age of 35 to 40.

The team, led by Lawrence Straus of the University of New Mexico and Manuel González Morales of the University of Cantabria, found that the woman's bones were coated with ochre, a red, iron-based pigment, earning her the moniker the "Red Lady of El Mirón." Her skull and most of her long bones were missing, but a group of researchers led by José Miguel Carretero of the University of Burgos found that her skeleton was otherwise mostly intact, suggesting she had been buried there. "This is the first more-or-less substantial human skeleton of the Magdalenian culture found in the entire Iberian Peninsula," says Straus.

The limestone block next to the Red Lady's burial spot has a large number of engravings on its outer face dating to around the time she died, including several that form a distinctive "V"



Jaw of the "Red Lady," Spain

shape, possibly meant to represent a female pubic triangle and to indicate that a woman had been buried nearby. In addition, the inner side of the block adjacent to the burial site was covered with ochre. "You could speculate that the block may have been a marker of her grave," says Straus.

The researchers are unsure why such

apparent effort was expended on the Red Lady after her death. "Whoever she was," says Straus, "she was given special treatment that was different from the norm. We don't know what the Magdalenians normally did with their bodies, but by and large they were not burying them."

—DANIEL WEISS



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For the Love of a Noblewoman

The remarkably well preserved, fully dressed body of a seventeenth-century noblewoman has been found in a lead coffin in the French city of Rennes. A team led by Rosenn Colleter of the French National Institute of Preventive Archaeological Research (INRAP) made the discovery while excavating the remains of a fourteenth-century convent at the site of a future conference center. Along with some 800 graves, the archaeologists unearthed five lead coffins, one of which was still hermetically sealed and held the nearly intact body. “I knew at once that it was a beautiful discovery,” says Colleter, “and that we would need to work quickly so as not to lose any information to decomposition.”

The woman was buried with a heart-shaped relic inscribed with her husband’s name and containing his heart. This allowed the team to identify her as Louise de Quengo, Lady of Breffillac, who died in 1656. The unusually complete state of de Quengo’s body and clothing is giving specialists a new look at French aristocratic burial practices of the time. Laboratory analysis of the remains will allow researchers to reconstruct the pathogens she carried, including tuberculosis. “It’s rare that you are able to give a seventeenth-century person a comprehensive health check,” says Colleter. The Lady of Breffillac will be reburied later this year.

—ERIC A. POWELL



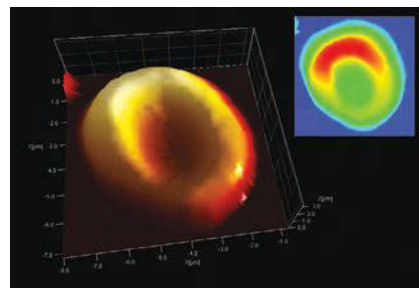
Lead coffin, Rennes, France

Blood on the Ice

Some 5,300 years ago, a man now known as Ötzi died high in the Tyrolean Alps from an arrow wound to his chest. Now German and Italian researchers have recovered two intact red blood cells from the arrow wound and another corpuscle from a wound on his hand. The blood cells appear normal—even after five millennia under a glacier. They are the oldest known intact cells ever recovered from a mummy. The discovery opens the way to analyze Ötzi’s blood for diseases and to understand his general state of health. The researchers have now moved on to the contents of Ötzi’s stomach.

—ZACH ZORICH

Atomic force microscope image of red blood cell from Ötzi



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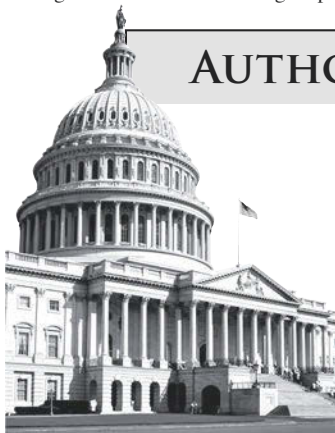
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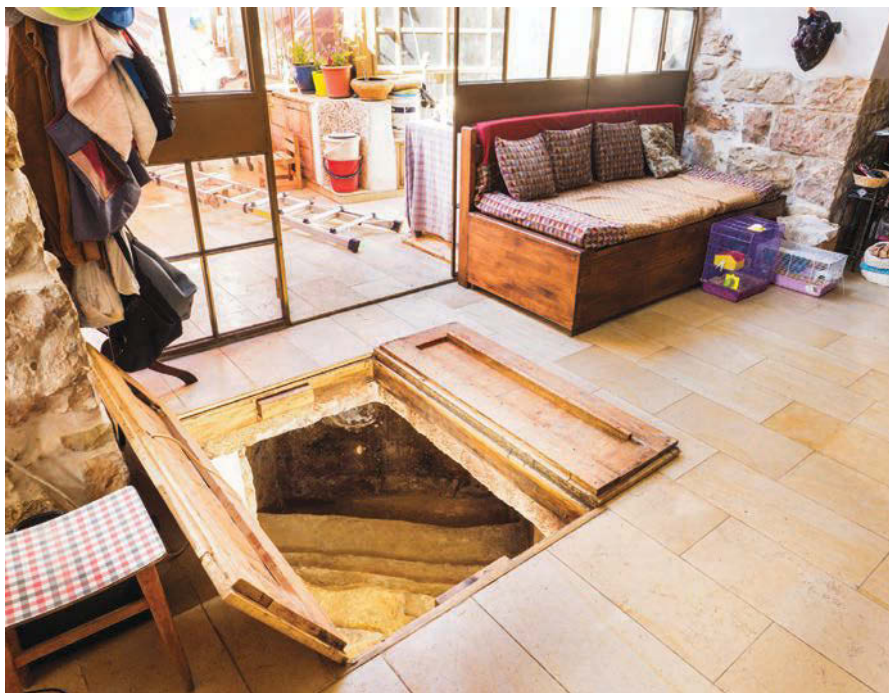
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Under the Rug

A family in Jerusalem has given new meaning to the idea that you never know what you'll find when you move the sofa. The Israel Antiquities Authority (IAA) has released details of the surprising discovery of a ritual bath, or mikveh, under a set of wooden doors covered by a rug in the living room of a home in the neighborhood of Ein Kerem. The large mikveh, which is reached by a stone staircase, was carved from bedrock and covered in plaster some 2,000 years ago, according to the dating of pottery and fragments of stone vessels found inside. According to IAA archaeologist Amit Re'em, archaeological remains are rare for this period in this neighborhood of Jerusalem, and the discovery of the mikveh will add new knowledge to scholars' understanding of the city's development in antiquity.

—JARRETT A. LOBELL



Mikveh found under living room, Israel

What's in a Name?

What seemed at first to be a simple ancient Roman burial has become an interesting case of how quickly archaeological interpretations can change. In February 2015, archaeologists from Cotswold Archaeology, working on the site of a new parking lot under construction in Cirencester in western England, found a tombstone. Because the site was known to have been a cemetery, the discovery was not especially surprising. But once they had completely excavated it, they found the artifact to be quite unusual. Unlike the other small tombstone fragments found at the site, it was intact, and when they turned it over, they

saw that it contained an inscription. Fewer than 300 inscribed tombstones from the period have been found in England.

The inscription reads, "In memory of Bodicacia, devoted wife, lived 27 years," and includes a carved image of the head of a god identified as Oceanus. The discovery got even more exciting when excavators found a skeleton underneath the stone, perhaps an opportunity to identify the buried person, another rarity for the Roman period in England. Upon further examination, however, they found that the skeleton belongs to a man, and that the stone, which dates to between A.D. 125 and 175, was reused perhaps a full two centuries later.

—JARRETT A. LOBELL



Roman tombstone, England

A Place to Hide the Bodies



Damaged *Homo heidelbergensis* skull

In northern Spain about 430,000 years ago, the bodies of at least 28 early humans—evolutionary precursors of Neanderthals, *Homo heidelbergensis*—found their way to the bottom of a 43-foot-deep shaft in the bedrock that archaeologists call Sima de los Huesos, or “Pit of the Bones.” How the bodies got there is a mystery that Nohemi Sala, a paleoanthropologist at the Joint Center for Evolution and Human Behavior at the Institute of Health Carlos III in Madrid, has been trying to solve since 2007. Several explanations have been proposed: Carnivores might have dragged them there, or perhaps 28 separate hapless hominins accidentally fell down the shaft. In one particular case, the pit appears to have been used to dispose of the earliest known murder victim.

Sala discovered the evidence of murder while studying breakage patterns of the bones—6,700 in total. Most breaks had occurred over the millennia that the bones sat in the ground, but one skull had some very distinctive damage. Two breaks in the forehead appear to have occurred while the individual was alive. With no signs of healing, they indicate the individual did not survive long after

being struck. The wounds had been made by a blunt object, and each blow was probably deadly on its own, which rules out the possibility of a hunting accident or unusual suicide attempt.

Sala’s analysis was also important for what it did not reveal. The pit bones did not show much evidence of carnivore damage, or the type of breaks that

might occur had people merely fallen in. Sala believes, instead, that Sima de los Huesos was purposefully used to dispose of the deceased, and that it may reflect the capacity of *H. heidelbergensis* for both violence and compassion. “They cared for the dead,” says Sala, “and this is a very human behavior.”

—ZACH ZORICH

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“T” Marks the Spot

The remains of a temple at Gebel el-Silsila in southern Egypt were last described in 1934, but were subsequently lost. A map from the early twentieth century, however, marked its general location with a “T.” This spring, using that map, a team led by Maria Nilsson of Sweden’s Lund University uncovered the lost temple’s foundation, which dates back to the fifteenth century B.C. The temple was located at a quarry that provided the building blocks for many of ancient Egypt’s major temples, including Luxor and Karnak. Unexpectedly, and despite the ample supply of sandstone at the quarry, the oldest part of the temple turns out to have been made of limestone. Later construction phases, including those associated with the pharaohs Amenhotep III and Ramesses II, used the local sandstone.

—DANIEL WEISS



Limestone relief fragments



Temple remains, Egypt

As American as Sliced Bacon in a Can

There’s more to the Salisbury Plain than Stonehenge. Throughout the twentieth century it was utilized as a military training ground, including during World War II, when U.S. forces used the plain as a staging ground for European operations. Over the last few years, archaeologists from Wessex Archaeology have found and excavated the remains of American camps and barracks, and have recently announced



Cans of U.S. military sunscreen and bacon



some of the finds, including cans of sliced bacon from Chicago (empty, fortunately) and a cache of 16 small

cans of New Jersey-made “U.S. Cream Sunburn Preventive” (still creamy).

—SAMIR S. PATEL

Surely You Joust

The remains of an injured medieval knight who may have had a serious appetite for jousting have been identified among some 2,500 skeletons unearthed at England's Hereford Cathedral. The knight immediately stood out because of unusual fractures on the right side of the body.



"We were aware of this individual even before he was removed from the ground," says Headland Archaeology's Andy Boucher, who supervised the project's post-excavation analysis. Osteological examination shows that the injuries, including many broken ribs and a shattered shoulder, were the result of blunt force trauma. "In a jousting tourney the knights used blunt weapons," says Boucher. "If these had been battle wounds, some sharp trauma would be expected."

The identity of the knight remains a mystery, though isotopic analysis of his teeth shows that he was probably born in Normandy and moved to Hereford as an adult. He was about 45 when he died, and not fully recovered from the injuries, suggesting he was still jousting at a relatively advanced age. Once the remains are carbon dated, it may be possible to identify him in contemporary tournament records.

—ERIC A. POWELL





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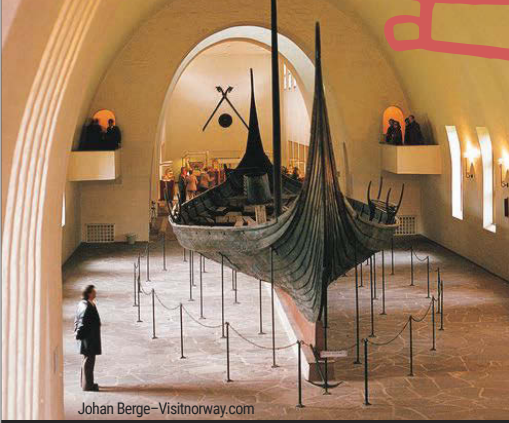
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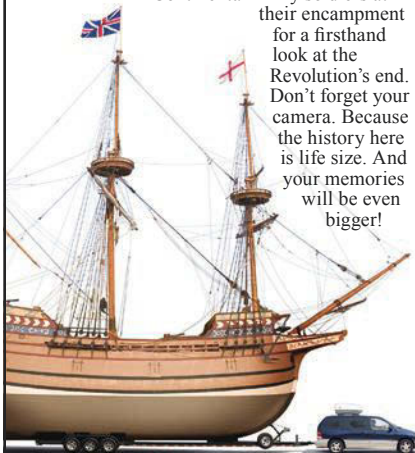
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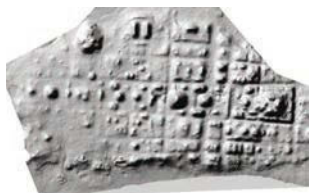


ICELAND: A team studying medieval monastic and religious sites on the island has found that monks and nuns preferred to secrete themselves away rather than share sites with common churchgoers. Because the island has historically been so sparsely populated, it was assumed that monks and nuns would have used everyday parish churches, rather than build their own. The new work indicates that monastic cloisters weren't built near parish churches, suggesting that monks and nuns went to great, expensive lengths to build their own churches and isolate themselves.



IRELAND: Recent storms have placed at risk the remains of three ships from the famed Spanish Armada that were wrecked during a storm in 1588, taking more than 1,000 lives. Discovered in 1985, the wrecks—*La Juliana*, *La Lavia*, and *La Santa María de Visón*—have in recent years disgorged artifacts onto the beach: a rudder, a cannonball, timbers, and more. In response, the country's Underwater Archaeology Unit has raced to retrieve items exposed by shifting sands, including cannons from *La Juliana*, a converted merchant vessel.

GUATEMALA: The ancient Maya city of Nixtun-Ch'ich' in Petén stands out not for its flat-topped pyramids, but for its plan. Years of excavation and mapping have revealed that Nixtun-Ch'ich' was built on a modern-style grid, which makes it unique among urban Maya sites. The level of organization suggests that it had a powerful ruler or state, and that life there could have been markedly different than in other Maya cities, which tend to be more spread out and spacious.



BOLIVIA: Three skulls found near Lake Titicaca, at Wata Wata, occupied from A.D. 200 to 800, stand out among Andean trophy skulls for the violence done to them and for their association with Tiwanaku culture, for which there was no prior evidence of head-taking. The skulls of three adults show evidence of scalping, beheading, defleshing, and even the forcible removal of the eyes, all around the time of death. Whoever they were, the trauma likely served to symbolically disempower them—in this life and perhaps the next.

ZIMBABWE: New investigations at the remote site of Mapela are providing insights into the origins of the Zimbabwe culture, known for its elite stone terrace houses surrounded by dwellings for commoners, most notably seen at the ruins of Great Zimbabwe. Mapela, a largely forgotten site, dates to the 11th century and suggests that the culture's signature class hierarchy and distinctive architecture arose some 200 years earlier than expected.





PAKISTAN: Compared with the other cradles of civilization in Egypt and Mesopotamia, little is

known about the people of the Indus Valley civilization, in large part because of the lack of elaborate burials and because their script remains undeciphered. A recent isotope analysis of teeth from Indus burials shows that people interred there were almost exclusively migrants from the hinterlands. The pattern suggests some kind of formalized migration, and that the remains of these people were treated differently (buried) than those of locals, which aren't preserved in the archaeological record.



LAOS: Skull fragments recovered from a cave represent the earliest known modern human in Southeast Asia. Between 46,000 and 63,000 years old, the find is better dated and more clearly modern than similar fossils that have been found in East Asia. The bone was found in the north of the country, which suggests that the previous assumption that early modern humans migrated solely along the coast is incomplete, and that they spread into a range of environments early in the migration out of Africa.



PAPUA NEW GUINEA: Mummies are created around the world, usually by some form of drying. Among the Anga people of the Aseki region, mummies are smoked. Until recently, the Anga smoked the deceased and displayed their bodies on cliffsides out of reverence and to mark territory, but exposure to the elements has left them deteriorated. Researchers from the United States and Canada recently helped conserve one, a leader named Moimango, using materials found in the jungle. The project was a success, and Moimango now sits again in the cliffside roost where he has overseen his descendants for some 60 years.

ETHIOPIA: Parts of jaws and teeth found in the Afar region—near where Lucy, the famed *Australopithecus afarensis*, was discovered in 1974—may represent a new human ancestor.

Dubbed *Australopithecus deyiremeda*, the new species, which dates to between 3.3 and 3.5 million years ago, may



have coexisted with Lucy's species, but appears to have been adapted to take advantage of tougher plants and grasses than *A. afarensis*. The differences are subtle, so more research and samples are needed to understand the evolutionary place of the new species.

AUSTRALIA: In 1916, Australian soldiers were preparing to make their name on the world stage, fighting for the Allies in WWI (such as at Gallipoli, shown here). But first they had to train for the trenches. Near Canberra, archaeologists have uncovered evidence of this preparation. Using aerial photos, researchers identified and have begun to excavate an area where Australian soldiers dug training trenches. Their dig is revealing how the military experimented with trench styles, and then trained soldiers to re-create them in the field.



In recent years, Quinhagak, a small southwestern Alaskan village just inland from the Bering Sea, has, along with other coastal communities in the state, witnessed dramatic erosion due to climate change. The area, located at the southern end of the Yukon-Kuskokwim Delta, has historically been prone to damaging storms and flooding, but now, melting sea ice is resulting in larger waves and has left the shoreline more vulnerable to storm surges. Land once held firm by permafrost has softened and is now easily eaten away by the tides, with the result that anything previously embedded in the permafrost is released.

Around 2007, carved wooden objects started washing up on the beach near Quinhagak, and the source seemed to be a site

several miles to the south known to have once been inhabited. The native Yup'ik people who live in the area generally believe in not disturbing their ancestors' settlements, but they recognized that this was a special case. Artifacts of their past were in danger of being lost forever, and they believed that if these objects could be recovered, younger, culturally adrift members of the community might forge a deeper connection with their heritage. So they called in Rick Knecht, an archaeologist at the University of Aberdeen in Scotland, who has extensive experience excavating in Alaska, to examine the threatened site. "We landed there," Knecht says, "and right away found a complete wooden doll on the beach. We followed the tide line and saw more and more evidence of wooden artifacts. A couple miles

Excavations near a Yup'ik village in Alaska are helping its people reconnect with the epic stories and practices of their ancestors

by DANIEL WEISS

CULTURAL



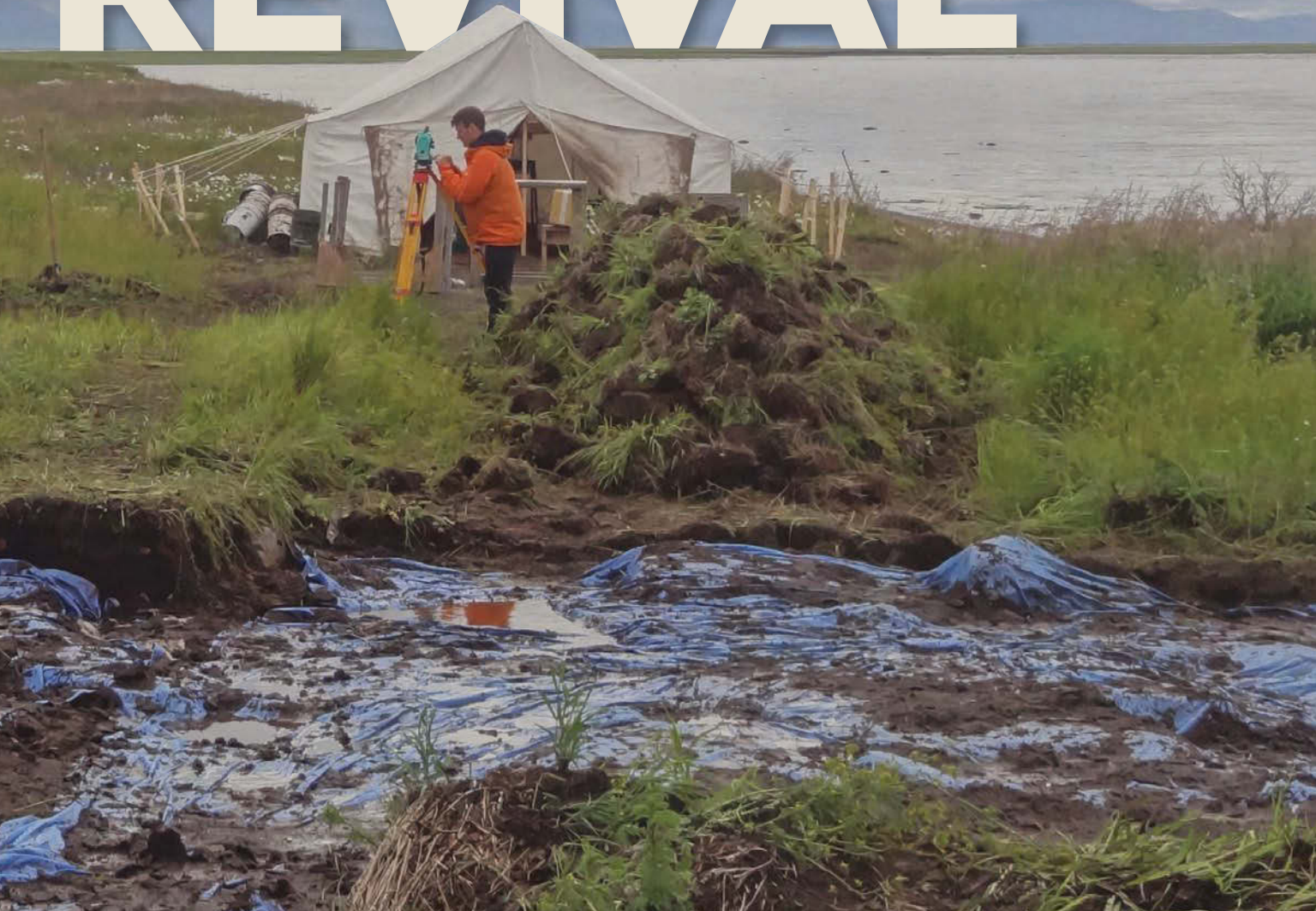
down the beach, we could see where they were coming from.” A dark midden partially concealed carved wooden shafts and half of a bentwood bowl. Knecht could tell that large chunks of earth had calved off, and big, grassy clumps could be seen on the beach with artifacts essentially pouring out of them.

The site has been dubbed Nunalleq, which means “Old Village” in the Yup’ik language. Since 2009, Knecht has led an excavation team there for up to six weeks each summer. He now recognizes that Nunalleq was occupied on and off between the fourteenth and seventeenth centuries, well before the first contact between the Yup’ik people and Russian traders, which took place in the 1830s. The archaeologists have found tens of thousands of artifacts—most made of wood or other organic

materials, preserved only because they had been embedded in permafrost—that are providing a rare glimpse of precontact Yup’ik life. Hundreds of wooden dolls, from simple flat sticks to three-dimensional carvings, and a number of wooden masks, some large enough for use in a masked dancing ritual and some small enough that they appear to have been designed for use as playthings with the dolls, have been found. Carvings in wood and ivory of animals important to the Yup’ik people, such as seals and birds, have also been discovered. “On average, a person might find two hundred pieces a day,” says Knecht. “There’s so much information there.” Among the most striking finds has been evidence of a period of fierce internecine conflict that may have gone on for hundreds of years.

On the shores of the Bering Sea, archaeologists have excavated the remains of a Yup’ik settlement that is threatened by erosion due to storms and climate change.

REVIVAL





A simply-made doll consisting of a face carved into a broken piece of a wooden kayak rib, dating to 1550 to 1650, was found at the site.

The Yup'ik people are related to the Inuit peoples who live in territories across Alaska, northern Canada, and Greenland, and share with them a common origin in Siberia and Asia. Archaeological evidence suggests that the ancestors of the Yup'ik had settled in inland areas of Alaska by 3,000 years ago and had established coastal villages by 600 years later, probably because they fished using nets, which allowed them to harvest large quantities of salmon on a predictable schedule. Seal and caribou were the other foundations of the Yup'ik diet, and food was plentiful enough that they could lead a more settled life than could the Inuit in other parts of the Arctic.

Historical accounts and stories from Yup'ik oral tradition suggest that the traditional Yup'ik village consisted of a *qasgiq*, where men and older boys lived, surrounded by a number of smaller *ena*, which housed women and boys younger than five. The *qasgiq* served as a workshop, where kayaks, hunting bows, and other tools were built and repaired, and as an instructional space, where elders shared oral traditions with the young and taught them how to hunt. It was also used as a community center, where gatherings and ritual events were held. Everyone lived in the village during the winter. At other

times, some would venture out to camps where the fishing or hunting was particularly good.

The site that Knecht and his team are excavating appears, based on carbon dating of organic material, to have been inhabited for some time around 1300 and then steadily from roughly 1450 through 1650. At the end of this period, the archaeologists have discovered, the site was the scene of a terrible massacre in which attackers set a *qasgiq* on fire with people and dogs still inside. "We found this burned floor with all this burned stuff on it, riddled with arrow points—absolutely riddled," says Knecht. "We also found the bodies of people who were dragged out of the house, along with the long grass ropes that were used to do so. Their skeletons are burned and kind of dismembered." Another human skeleton was found inside the house, with an arm outstretched, apparently attempting to dig out from under



Burned material (top) provides evidence that a house on the site was set on fire around 1650. Slate endblades (above) were used as arrow points for hunting or warfare.

a sod wall. The displaced skull of a young woman was found with an arrow tip embedded in the back of it. Also discovered inside the house were the remains of a number of dogs that had perished in the fire. "We found this charred beam right across the middle of a dog," says Knecht, "and it cooked him so fast, so intensely, that he was pretty well preserved."



These carved wooden dolls probably served as playthings for children and date to between 1540 and 1650. Archaeologists found the large doll (top row, center) on the beach near the site. Wooden artifacts at the site were preserved because they were embedded in permafrost, which has begun to melt in recent decades.

The evidence discovered at Nunalleq fits strikingly well with an episode in Yup'ik oral tradition that describes a time of epic intervillage battles known as the Bow and Arrow Wars. In the story, "the village was destroyed by a war party," says Ann Fienup-Riordan, a cultural anthropologist who has studied and worked with the Yup'ik people for 40 years. "Their men were out, and there was an encounter. They were put to rout during a battle, and then the winning warriors came down, surrounded the village, burned it down, and killed everybody there, including, in one version, their dogs." The defeated village in the story is described as being set alongside the Arolik River. The mouth of a river with this name—known for its salmon—is several miles from the excavation site today, but its course is thought to have been much closer when the site was inhabited. Arolik is derived from the Yup'ik word for "ashes," and Knecht believes the river was named for the massacre that took place alongside it.

The Bow and Arrow Wars came to an end when the Russians arrived in the 1830s, according to Yup'ik oral tradition. The massacre documented by the Nunalleq excavation establishes that warfare was taking place around 1650, nearly 200 years before this encounter, and Fienup-Riordan believes it raged for 300 to 500 years in all. The archaeologists have found evidence that this sustained state of war was so traumatic that it led the residents of Nunalleq to alter the traditional layout of their village. "As the wars heated up," says Knecht, "they actually took the men's house and divided it up into apartments so everyone was living in one big building, creating a more fortified setting. It had to be really extreme warfare to actually change your architecture in response to it."

According to Fienup-Riordan, revenge is the reason typically given in stories for attacks during the Bow and Arrow Wars. Knecht, however, suggests that widespread resource shortages may have set the stage for strife. Just as climate change is taking a serious toll on the Yukon-Kuskokwim Delta today, a period of global cooling known as the Little Ice Age put the area under pressure from around 1400 through 1750, overlapping with most of the time when Nunalleq was inhabited. "We think that the Bow and Arrow Wars might be related to stresses on their subsistence menu due to the Little Ice Age, which hit pretty hard in Alaska," says Knecht. "Some foods may have been harder to get, and the normal hunting



Wooden masks such as this one with both human and wolf characteristics (left) were used as part of an annual winter dancing ritual and were usually broken (below) or destroyed afterward.

areas may not have yielded enough meat, creating pressure to attack other areas and move into them."

For the Yup'ik people who live in Quinhagak today, seeing the evidence of the massacre at the Nunalleq site—along with other remains of precontact life salvaged by the excavation—has been revelatory. "We had always heard about the Bow and Arrow Wars from my late grandfather—it was a whole eye-for-an-eye type of deal," says Warren Jones, president of the Quinhagak village corporation, Qanirtuuq Inc., which owns the land containing the dig site and helped fund the excavation for several years before it received a large grant. "But the coolest thing," says Jones, "was actually seeing the burned structure of the building, seeing arrowheads lodged in the poles. I can see what our elders were talking about when they were telling the story. It's almost word for word."

Although the Yup'ik language continues to be widely spoken in the Yukon-Kuskokwim Delta, and the Yup'ik people still hunt and gather much of their food, the passing on of oral traditions that Jones describes has grown more sporadic in recent decades. This is due in part to the fact that young people now spend their time going to school and playing video games rather than listening to their elders' stories. But it is also the product of nearly 200 years of interactions with foreign traders, missionaries, and colonizers, all of whom had a dramatic impact on Yup'ik cultural practices.

With the arrival of Russian traders in the 1830s, notes Fienup-Riordan, came the first in a series of smallpox and influenza epidemics that ravaged the native Yup'ik population of the Yukon-Kuskowim Delta, which had previously stood at around 15,000. This may explain why the Bow and Arrow Wars are said to have ceased with the coming of the Russians. The Russian Orthodox Church established a presence in the area and introduced the basics of Christianity, but otherwise had relatively little effect on Yup'ik life. Moravian missionaries who arrived in the southern section of the Yukon-Kuskowim Delta in 1885, after the United States had purchased Alaska, set up a mission and grammar school in Quinhagak by 1903, and had a much greater impact. Tracing their origins to Moravia, in what is now the Czech Republic, the Moravians were among the earliest Protestant groups to break off from the Roman Catholic Church. Among the Yup'ik, they focused in particular on wiping out the traditional practice of masked dancing, which they described in their writings as "heathen rites" and tantamount to "idol worship."

The Yup'ik masked dance ritual was called *agayuyaraq*, which means "way of requesting," and was traditionally



the last of a series of annual winter ceremonies. According to Fienup-Riordan, everyone from a given village, or sometimes multiple villages, would gather in the *qasgiq* to watch dancers perform with carved wooden masks that frequently depicted animals or part-human, part-animal beings. The dancers were believed to take on the spirits of the animals portrayed by the masks and would make the animals' sounds as well as entreat them to offer themselves up to hunters in the coming year. Once used, the masks were typically burned, broken, or left out on the tundra to decay. Yup'ik masks were collected by late nineteenth- and early twentieth-century explorers, and their vivid expression of a non-European belief system served as an inspiration to artists such as the Surrealists. Intact masks from the precontact period are extremely rare. However, the archaeologists have found a number of complete masks at the Nunalleq site, the largest of which depicts a creature that is part human and part wolf. These masks may have been undamaged because they had not yet been used in an *agayuyaraq* when the village was burned to the ground. They may be the oldest complete Yup'ik masks in existence.

The Moravians were especially effective in suppressing masked dancing and other traditional Yup'ik practices because they enlisted native "helpers" to serve as the primary missionaries to the people. This had the effect of deeply embedding within Yup'ik communities the notion that their traditional religious practice was wrong and that all kinds of dancing were sinful. In addition, many community elders, who were the repositories of cultural knowledge, perished in successive waves of epidemics.

Since the 1960s, there has been a revival of dancing—usually without masks—in many Yup'ik communities, particularly those in the northern part of the Yukon-Kuskokwim Delta, where Catholic missionaries took a more *laissez-faire* attitude toward native cultural practices. Until very recently, however, that had not been the case in Quinhagak, where the Moravian influence remained strong and there had been no traditional dancing for more than a hundred years.

The Nunalleq excavation has helped the Yup'ik people of Quinhagak reconnect with their heritage. A number of villagers have taken part in the dig, and native artists have been on hand to sketch artifacts fresh out of the ground and to carve replicas, often within a day. Even some young people have taken up carving. At the end of each season, the archaeologists put on a show-and-tell exhibition to present their discoveries. In discussions with younger members of the community, village elders have explained the purpose of selected artifacts. "When I see the elders recognize an object, and they're telling the children something," says Jones, the village corporation president, "it makes my hair raise on the back



Yup'ik people attend a 1911 service at the Quinhagak mission of the Moravian Church, whose missionaries had a long-lasting effect on the native cultural practices of the area.

of my neck. It makes me feel really good."

In part as a result of their experience with the dig, a group of children from Quinhagak petitioned the elders for and received permission to form a traditional dance group. And so, in 2013, a group of dancers from Quinhagak performed, without masks, first at a large, area-wide dance festival in the town of Bethel, 70

miles to the north, and then during the annual artifact show-and-tell exhibition in Quinhagak. "They were welcoming the pieces back," says Knecht. "That was the first time there had been traditional dancing in Quinhagak in more than a century. It's all part of this revival that is growing along with the finds."

The first dance performed by the youth of Quinhagak was, tellingly, set to a song about a major storm that had hit the area a few years earlier and washed away a portion of the dig site. In the years since Knecht and his team began digging at Nunalleq,



Quinhagak elder and carver John Smith sketches an ivory pendant so he can make a modern copy as a gift for his grandson, who had found the artifact at the site earlier in the day.

climate change has continued to take its toll, and the sea has, thus far, swallowed up almost 50 feet of the site. Fortunately, the ground was lost after it had been excavated, but a single bad storm could wipe out the rest overnight. Erosion and storms have caused problems in Quinhagak as well, destroying an airstrip and making it impossible at times for barges carrying heating oil and groceries to make landfall—major hardships for an area inaccessible by road. Plans are underway to move the village to more secure ground. "I check the weather every day and worry about what might happen to the site and the village," says Knecht. "It keeps me up at night." For as long as conditions allow, though, he'll continue to work alongside the Yup'ik people to preserve what remains of their past. ■

Daniel Weiss is a senior editor at ARCHAEOLOGY.

New York's Original Seaport

Traces of the city's earliest beginnings as an economic and trading powerhouse lie just beneath the streets of South Street Seaport

by JASON URBANUS

OVER THE PAST 250 YEARS, perhaps no stretch of land in America has undergone greater transformation than Lower Manhattan. Today, its shoreline barely resembles what the earliest Dutch immigrants encountered in the 1600s. The labyrinthine canyons formed by block after block of modern skyscraper construction were once an idyllic setting of small hills, streams, and wetlands. Lower Manhattan is a palimpsest on which each new era has written its own physical history. With the help of archaeology, it is occasionally possible to reconstruct those faintly visible landscapes of the past. The South Street Seaport is located along Lower Manhattan's eastern shore, near the place where the East River meets the top of New York's magnificently sheltered harbor. Today it is a tourist-friendly destination with shops, tour boats, and restaurants, and serves as a refuge from the bustle of neighboring Wall Street. No other place epitomizes the growth and transformation of Manhattan in the eighteenth and

An English creamware plate, found during excavations under Beekman Street, commemorates the death of George Washington and displays iconography of a newly formed American identity.

An early 1870s' bird's-eye view of New York City shows the southern tip of Manhattan, with Battery Park in the foreground and the Brooklyn Bridge on the right. The image was created by fourth-generation German-American George Schlegel, who operated a print shop at 97 William Street, just blocks from the Seaport.



nineteenth centuries more than the South Street Seaport, when it was the busiest port in the United States.

THE 11-BLOCK AREA right around the Seaport, nestled in the shadow of the Brooklyn Bridge, has recently been the focus of a city-led initiative to improve its utilities and infrastructure. The city has long hoped





to stimulate the neighborhood's commercial, residential, and touristic appeal, most recently after it was devastated by a seven-foot storm surge during 2012's Hurricane Sandy. The initiative includes installing new curbs, resurfacing the streets, and maintaining and replacing damaged subterranean utility lines. All of these projects permit and, in fact, require that archaeologists be brought in prior to the work. Alyssa Loorya, founder of Chrysalis Archaeological Consultants, is one of the archaeologists contacted by city officials to evaluate sensitive areas slated for construction. Over the past decade her team

has excavated areas along Fulton, Front, Beekman, Water, and Pearl Streets, as well as extensive sections of Peck Slip. "We have covered pretty much every block in the historic district that has been excavated since 2005," she says. "It's been really nice to get a whole little picture of the way this area developed."

Almost none of the land where Loorya's team has worked existed when the first Europeans arrived in New York Harbor. The original Manhattan shoreline coincides roughly with the line of present-day Pearl Street, three blocks inland. The land



Workers (above) remove a 13-foot section of a 19th-century wooden water main under Beekman Street in Lower Manhattan. The main's well-preserved wooden joint is shown (upper right) fitted together and separated.

associated with Water, Front, and South Streets, which form the backbone of the South Street Seaport, was completely created by human activity. From the late 1600s through the early 1800s, Lower Manhattan's shoreline gradually crept farther into the East River as part of a deliberate landfilling process. Land, especially waterfront land, has always been at a premium in New York, and it was no different during the city's early history. The real estate created for the South Street Seaport was extremely valuable, especially to the merchants, ship owners, and shopkeepers responsible for its growth.

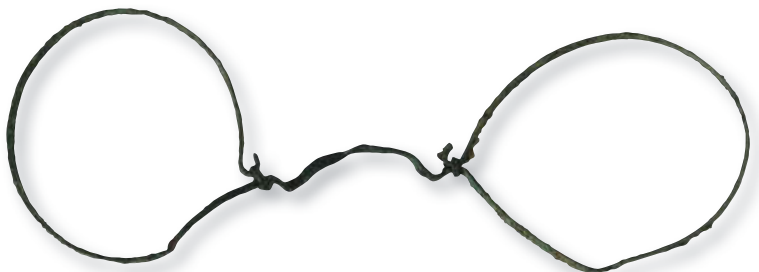
The transformation of the East River waterfront was stimulated by the Dongan Charter of 1680. This allowed the city to collect revenue by selling "water lots," designated sections of river adjacent to the shoreline. The Dongan Charter originally allowed for the development of an area extending 200 feet into the East River, a distance that was doubled to 400 feet by the Montgomerie Charter of 1731. Water lot purchasers were encouraged to, at their own expense, construct wharves, deposit landfill, and erect buildings on their lots. Lot by lot, the river was supplanted by land and fitted with warehouses, offices, and shops related to the burgeoning shipping industry. As the

shallow waters of the original shoreline were eliminated, ships loading or unloading goods in New York no longer needed to anchor offshore and transport goods via smaller boats. They could now dock immediately landside along slips and piers. This new waterfront neighborhood soon became the focus of New York's mercantile and maritime industry.

Archaeologists working along the Lower Manhattan riverfront over the past few decades have uncovered the methods that colonial New Yorkers used to create new land. The process almost always involved the construction of a wooden retaining device or framework that was sunk into place along the river bottom and filled with debris, gradually forming the foundation for new city streets and blocks. During recent utility work, archaeologists have been able to uncover sections of the colonial timber framing and cribbing in several places beneath the South Street Seaport, notably along Peck Slip and Beekman and Water Streets. In fact, in some places, the 300-year-old bulkheads were still successfully retaining the East River and their removal caused temporary flooding within the trenches. Although the depth of the landfill varies depending upon the original irregular shoreline, it measures between 20 and 35 feet deep in the most extensively filled areas.



Artifacts of everyday life belonging to the 18th- and 19th-century residents of Lower Manhattan unearthed during the excavations include (left to right): a glass goblet from the wealthy residence of Robert Crommelin on Beekman Street, a pair of eyeglasses found in City Hall Park under the basement of the city's first almshouse, a smoking pipe found in City Hall Park with a figure that may be an early reference to Tammany Hall, part of a ceramic whistle or toy, and British military uniform buttons.



In this way, beginning in the late 1600s, the South Street Seaport began to take shape. By the mid-eighteenth century, Water Street had been created, followed by Front Street later in the century, and ultimately South Street by the early 1800s. By the beginning of the nineteenth century, New York and its South Street Seaport had surpassed Boston and Philadelphia to become America's primary port, and by the 1850s, only London was handling more marine activity.

For archaeologists, the layers of landfill deposits have provided a wealth of information about life at the Seaport during the eighteenth and nineteenth centuries. During the landfill process, a tremendous amount of fill was needed in a short amount of time. Owners of the water lots would petition locals to help them with material. Much of what they used, we (and they) would consider garbage. "Even today, New York is still figuring out where to put our garbage," says Loorya. "[Back then,] there was no garbage pickup, so what do you do with your trash? You dump it in the East River and create land."

The examination of antique garbage is one of the best ways to reconstruct past daily life. Despite the fact that substantial modern construction and utility work carried out over the years has destroyed much of the colonial-era archaeological remains, small pockets of undisturbed fill have helped create an accurate image of the old Seaport. Some trenches provide clues to the Seaport's creation, while others offer small tidbits of information about the colonial shipping industry and even the origins of certain voyages. In one instance, excavation beneath a section of Beekman Street revealed a large concentration of Caribbean coral, not native to the Northeast. It was likely taken aboard a ship sailing from the West Indies for ballast, and later discarded in the East River as waste. In an area along Peck Slip, among the fill debris, there was a large mass of British-made pottery that was broken but appeared to be entirely unused. Loorya suggests that the high-quality imported cargo was damaged during transit and deposited in the landfill upon arrival in New York.

Since it was impractical for large quantities of fill to be carted in from outside neighborhoods, most of the debris came from nearby shops and residences. This is proving instrumental in reconstructing the urban topography of the Seaport. Loorya discovered that it is possible to map out the locations of

certain industries by the artifacts found within localized fill layers. "We find concentrations of a certain type of artifact that may represent a specific business," she says. In one area, Loorya's team found more than 600 ink bottles, some still with their ink and labels surviving, which imply a nearby print shop. Other deposits yielded material from butcher shops, ironworks, tanneries, taverns, and pottery shops. This data is supplemented by hours spent researching New York City archives and scouring old newspapers to try to confirm the locations of certain businesses. In many cases, the archaeology beneath the streets can be directly corroborated by an eighteenth- or nineteenth-century advertisement. In one case, archaeologists discovered a large concentration of shoes during an excavation, which led them to theorize that a cobbler had been located nearby. Its existence was verified by an old advertisement for a shoemaker on the same block. One of the things that became clear for Loorya was the diversity and availability of goods. "You look at some of the ads and what they're offering, and you can get pretty much everything in New York City, even in the eighteenth century," she says. "Everything was coming in from all over the world."

What also becomes apparent is that the South Street Seaport wasn't solely a commercial district, but was also a place where residences and businesses were often intertwined. Wealthy landowners and merchants who were responsible for filling the water lots built homes in the neighborhood. During the installation of a modern electrical line on present-day Beekman Street,

In a deposit (below) associated with a mid-19th-century print shop on Fulton Street, archaeologists found more than 700 ink bottles, and this mucilage bottle (left) with the remnants of its paper label still attached.



archaeologists unearthed a trove of material in an eighteenth-century residence owned by a wealthy businessman, Robert Crommelin. More than 3,000 artifacts were retrieved from a debris layer in the mansion's basement storeroom. These finds are helping illuminate upper-class life in postcolonial New York. Faunal remains of lamb, turkey, guinea fowl, and oyster shells, as well as liquor bottles, wine bottles, ornate water glasses, and wine goblets attest to the diet and culinary habits, as well as the aesthetics, of the house's residents. The finer examples of postcolonial ceramics were decorated with floral, willow-patterned, or patriotic motifs. One of the most important artifacts discovered was a plate commemorating George Washington's death in 1799. The scene depicts an eagle and a female Liberty figure bearing a shield with 16 stars—the number of states at the time of Washington's death. A pyramid-shaped stela in the background is carved with the inscription, "Sacred to the memory of Washington." Coincidentally, another excavation just a few blocks away produced a series of Revolutionary War uniform buttons. The six buttons belonged to British soldiers, at least two of whose regiments, such as the renowned 45th Regiment of Foot, had fought and defeated George Washington in the Battle of Brooklyn, the engagement that was instrumental in keeping New York under British control throughout the course of the war.

Not every trench within the South Street Seaport excavations spawned the copious amount of material recovered at the Crommelin estate, but dozens of small excavations have yielded thousands of personal artifacts, including chamber pots, toothbrushes, tobacco pipes, medicine bottles, and shoe buckles, all of which encapsulate daily life during this expansive period in the history of the area. Taken all together, the archaeological evidence offers a close view of a cross section of colonial New York society. The variety of artifacts demonstrates that not only are wealthy merchants and local industries present in the record of the Seaport, but that they exist side by side with sailors, soldiers, immigrants, slaves, tavern-goers, and lower classes. In the city's early days the Seaport was truly a hub of interaction, where New Yorkers from different backgrounds came together on a daily basis.

THE RECENT ARCHAEOLOGICAL work at the South Street Seaport has most importantly underscored New York's multifaceted and complicated relationship with water. On one hand, its magnificent harbor and rivers are the lifeblood of the city and the source of its wealth and industry, while on the other, Manhattan is geographically under-resourced with naturally occurring fresh water. Since the mid-nineteenth century and the completion of the Croton Aqueduct, this has not been a major problem for New Yorkers, but it was during the city's first few centuries. Lower Manhattan's early population found it difficult to access a renewable source of drinking water. Residents either dug shallow wells or relied on the Collect Pond, a freshwater pond just north of today's City Hall Park. By the late eighteenth century these sources were no longer reliable, since Lower Manhattan's well water was often brackish and the Collect Pond had become

so polluted by local industries that its water was no longer potable. At some point, the city had to address the problem. During recent efforts to upgrade the South Street Seaport's modern utilities, workers uncovered New York's first attempt at a public water-distribution system.

In 2006, Loorya was called to investigate the intersection of Beekman and Pearl Streets, where an old wooden conduit had been unearthed beneath the tangled web of modern utility lines. "It all started with the unanticipated discovery of a wooden water main," she says. "It turned out to be an intact wooden water pipe that was still connected to an adjacent section of pipe by its metal collar." The two sections of pipe—actually hollowed-out tree trunks—averaged 13 feet long and 9.5 inches in diameter. The tapered end of one was inserted into the opening of the other and secured with an iron bracket. These wooden pipes, which had remained in situ, were part of Manhattan's first water system in the early nineteenth century, and are the only surviving example of two wholly intact and attached mains. They are also remnants of an interesting bit of early New York history: In 1799, the Manhattan Company, founded by Aaron Burr, had been established to provide lower New York with clean water. The company pumped water through a system of wooden mains, such as the two that were found, for a cost of five dollars per household per year. The venture was not entirely successful. "If you read contemporary newspaper reports about the Manhattan Company, people were complaining about the lack of water pressure and other various things," says Loorya. This hardly seemed to interest the Manhattan Company, though, as its priorities lay more with establishing itself as a bank than on efficiently distributing water. It eventually sold its waterworks rights, reinvested the money, and is better known today as JPMorgan Chase & Co.

IN THE LATE NINETEENTH century the South Street Seaport began to fall into obsolescence, as larger sea vessels and Erie Canal traffic were better suited to the deeper, more spacious Hudson River side of Manhattan. It was finally revitalized in the second half of the twentieth century with the construction of a tourist-friendly marketplace, only to decline again after 9/11 and in the last decade, in part because of the damage caused by Hurricane Sandy. During the storm the East River surged past South Street, Front Street, and Water Street before stopping near Pearl Street, the original Manhattan shoreline. Now, the South Street Seaport is the focus of a \$1.5 billion redevelopment project. Throughout its existence, despite periods of change, when it has been altered and adapted to meet the city's needs, the Seaport has remained a subtle remnant of an important era in New York City's early history. For archaeologists, the ebb and flow of the Seaport's fortunes has provided a look at the story of how this often underappreciated port developed and the people who made it happen. "History—things that have happened in the past, people who have walked these streets in the past—adds to our knowledge of how we got to where we are today," Loorya says. "The reality is New York City could not have become what it is without the South Street Seaport." ■

Jason Urbanus is a contributing editor at *ARCHAEOLOGY*.

Golden House of an Emperor

How archaeologists are saving Nero's fabled pleasure palace

by FEDERICO GURGONE, photographs by MARCO ANSALONI



“In no other matter did he act more wasteful than in building a house that stretched from the Palatine to the Esquiline Hill, which he originally named “Transitoria” [House of Passages], but when soon afterwards it was destroyed by fire and rebuilt he called it “Aurea” [Golden House]. A house whose size and elegance these details should be sufficient to relate: Its courtyard was so large that a 120-foot colossal statue of the emperor himself stood there; it was so spacious that it had a mile-long triple portico; also there was a pool of water like a sea, that was surrounded by buildings which gave it the appearance of cities; and besides that, various rural tracts of land with vineyards, cornfields, pastures, and forests, teeming with every kind of animal both wild and domesticated. In other parts of the house, everything was covered in gold and adorned with jewels and mother-of-pearl; dining rooms with fretted ceilings whose ivory panels could be turned so that flowers or perfumes from pipes were sprinkled down from above; the main hall of the dining rooms was round, and it would turn constantly day and night like the Heavens; there were baths, flowing with seawater and with the sulfur springs of the Albula; when he dedicated this house, that had been completed in this manner, he approved of it only so much as to say that he could finally begin to live like a human being.”

Suetonius, *The Lives of the Caesars*



A member of the team restoring and conserving the interior of the Domus Aurea works in the Great Cryptoporticus of the palace's east wing, a massive space with frescoed walls and ceiling vaults some 36 feet high.

IN THE MID-FIRST CENTURY A.D. there was no building in Rome as sumptuous, ornate, or grand as the Domus Aurea, or “Golden House,” a lavish imperial residence and sprawling park covering hundreds of acres in an area known as the Oppian Hill between the Palatine and Esquiline Hills on the city’s northern side. Constructed by the emperor Nero and born from the ashes of the massive A.D. 64 fire that destroyed the city center and cleared the space that it would occupy—perhaps explaining the persistent suspicion held by many Romans that the emperor himself had set the fire—the vast property had hundreds of rooms. There were walls sheathed in polychrome marble, vaults and ceilings covered in vibrant frescoes by the artist Fabullus, and in precious stones, ivory, and gold, and gardens full of masterpieces of sculpture from Greece and Asia Minor. According to the Roman historian Tacitus, who praises the palace’s architects, Severus and Celer, for having the “ingenuity and courage to try the force of art even against the veto of nature,” what was even more marvelous than the spectacular interiors were “the fields and lakes and the air of solitude given by wooden ground alternating with clear tracts and open landscapes.”

Yet the emperor’s extraordinary palace was never finished, and it stood for only four years—on June 9, A.D. 68, Nero committed suicide after being convinced he was condemned by the Senate to die as a public enemy. His death brought to a close the Julio-Claudian dynasty that had begun with Augustus, and ended a reign distinguished by excessive lasciviousness, cruelty, and violence, and that led to civil war. The next three emperors ruled for only 18 months in total, and all were either murdered or committed suicide. It was not until December of A.D. 69, when Vespasian became emperor, that a period of relative calm that was to last more than a decade began.

Nero’s successors attempted to obliterate not only the emperor’s memory, but also all traces of the Domus Aurea, and to return to public use, land he had seized for his private projects. Soon Vespasian drained the artificial lake and began construction on the Colosseum. The Colosseum actually acquired its name from the giant bronze statue that Nero had commissioned of himself to resemble the Colossus at Rhodes, one of the Seven Wonders of the Ancient World. In his con-

tinuing effort to banish all memory of the disgraced emperor, Vespasian added a crown to the statue and rededicated it to the Roman sun god, Sol. Around A.D. 128, the emperor Hadrian had the statue moved to the northwest side of what was then known as the Flavian Amphitheater—after the new imperial dynasty founded by Vespasian—thus permanently associating the building with the statue, even after the statue itself was gone. The Domus Aurea was stripped of many of its fine decorations, and its vaulted spaces were filled with earth, providing a level surface upon which the massive public baths of the emperors Titus and Trajan were constructed.

After Rome succumbed to invaders in the sixth century, the Oppian Hill was more or less abandoned, leaving the Domus Aurea undisturbed in comparison with much of the ancient city, and preserving what remained underneath for nearly 1,500 years. Even today the monument is invisible on satellite maps. It was not until the late fifteenth century, when a boy fell through an opening in the side of the hill, that the palace’s decoration became well known. Some of the greatest Italian painters, among them Pinturicchio, Ghirlandajo, and Raphael, were lowered by ropes into openings that were originally believed to be caves. Instead, they saw what became the main source of knowledge of the ancient Roman styles of painting that would so heavily influence the art and architecture of the Renaissance.

DESPITE THE PROTECTION that should have been afforded it by being filled in and covered over so completely, time has not been kind to Nero’s luxurious palace. In the eighteenth century, vineyards covered the Oppian Hill, and in 1871, a large public park incorporating the ruins of the ancient baths was created there. The park was then enlarged during Mussolini’s reign and served as a backdrop for the opening of the newly renovated area around the Colosseum

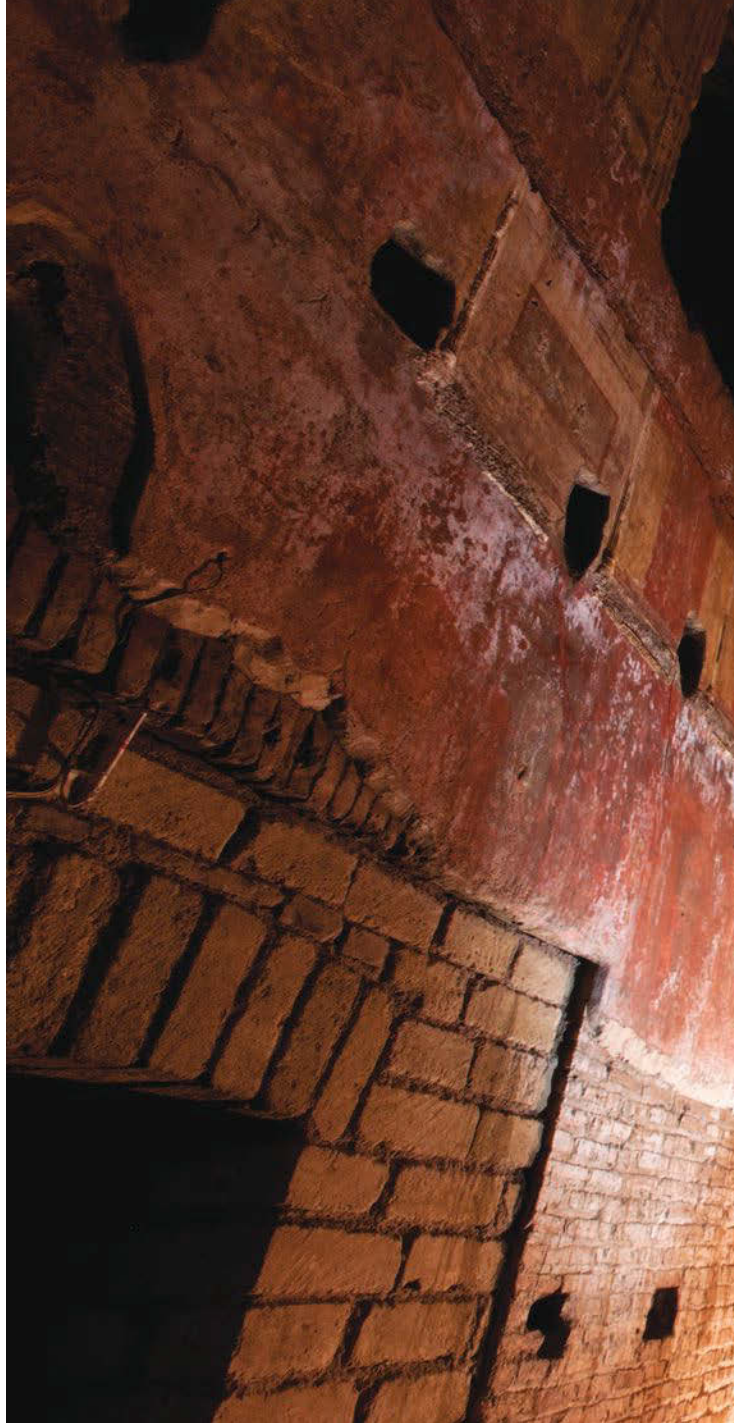
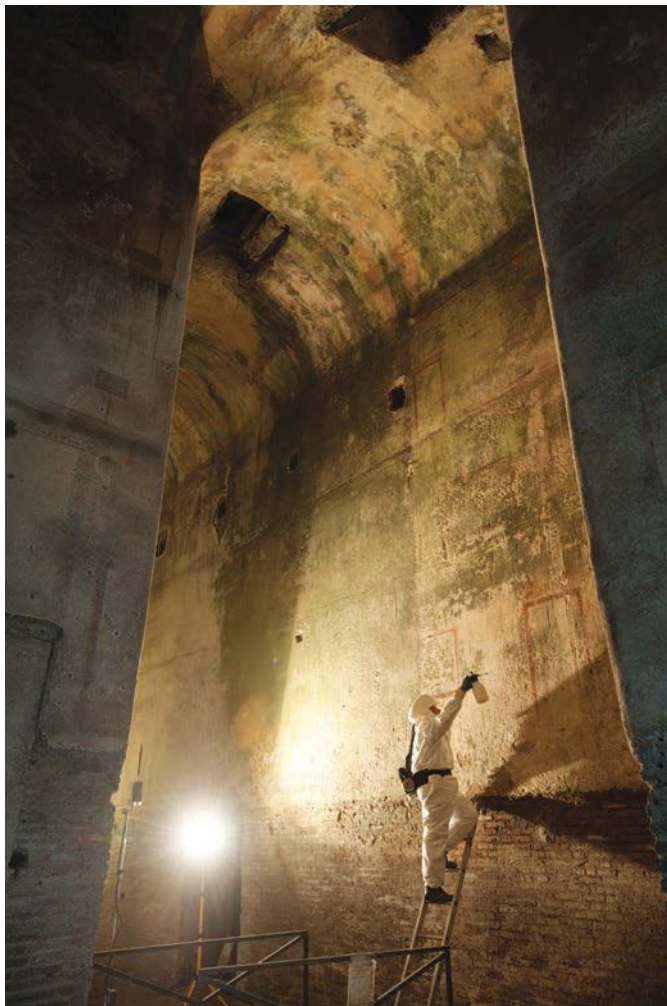
The Roman artist Fabullus conceived of even the smallest details of the Domus Aurea’s decoration, including paintings of mythical creatures, fanciful architecture, and naturalistic fauna.



on April 21, 1936—a date that recalls the legendary founding of Rome on the same date in 753 B.C.

These decisions were disastrous for the ruins that lay beneath the park. Plant life, including weeds, the roots of ailanthus, acacia, and oak trees, and even a Himalayan pine that, according to very old local residents, was given to Rome by Hirohito,

Biologist Carlo Chinellato applies a specially formulated biocide to protect some of the Domus Aurea's frescoed walls against fungal and bacterial growth.



the future emperor of Japan, in 1921, have been infiltrating the *cocciopesto* (pieces of pottery or brick mixed with lime and sand used as mortar) that holds together the floor of Trajan's baths and threatens the remains of the Domus Aurea underneath for more than a century. Not only have the plants' roots, in search of the minerals that abound in ancient mortar, cracked the floor, but chemical compounds released from the roots are also contributing to the *cocciopesto*'s disintegration.

An ambitious restoration and excavation project led by the Archaeological Superintendency of Rome is now under way. The first priority has been to completely rethink and redesign the

A public park now sits atop the 1st-century A.D. flooring that was constructed to cover the Domus Aurea's west wing.





A view of the brickwork and frescoed interior of Room 42, one of the grand spaces inside the Domus Aurea meant for Nero's use

park, which is in terrible condition. “Until we have lightened the volume of the park—whose weight increases by up to 30 percent when it rains—by more than half, we are far from any effective solution,” says Fedora Filippi, the archaeologist responsible for the Domus Aurea excavations. “We have had to map and then remove existing trees that are causing the most damage, while documenting the entire excavation phase in detail,” she says. “We can’t just dismantle the garden without taking precautions or we will destroy the palace’s frescoed walls, which have managed to adapt and stay standing over the centuries.” According to landscape architect Gabriella Strano, who, along with agronomist Pier Luigi Cambi and biologist Irene Amici, has worked at the mapping project’s pilot site—the first of 22 planned lots—the weight of the earth covering the archaeological remains is

conservatively estimated at 5,500–6,600 pounds per square meter, not including the weight of the trees. One laurel tree, which had stood above the Domus Aurea’s ornate frescoes, was removed and found to have weighed more than 30,000 pounds.

Filippi explains that the existing garden will be replaced at a level more than 10 feet above where it is now, with a subsurface infrastructure designed to seal off the underground architecture from moisture and regulate temperature and humidity. The new garden will also have walkways that will recall the past, says Strano. “The ancient writers Columella and Pliny tell us that Roman gardens were made up of straight avenues crossed at right angles by little paths. These new lines will also suggest to visitors the outlines of the structures underneath, and make it possible to channel rainwater.”

ONE OF THE BENEFITS OF the effort to conserve and stabilize the surviving parts of the Domus Aurea has been the chance to excavate sections that have never been explored, expanding scholars' knowledge of the palace and its surroundings' later history. In 2014 a test site was opened in the palace's western district. "The area surveyed, totaling more than 8,000 square feet, was part of the Domus Aurea's peristyle. This was filled in to act as a support for the Baths of Trajan," says archaeologist Elisabetta Segala. "This excavation has allowed us to deepen our understanding of the fate of this space, especially when the baths were abandoned, after A.D. 539, when the Ostrogoths cut off the supply of water from the aqueducts to the

city." It is also known that in the Middle Ages this area became a necropolis for the humble inhabitants of the Oppian Hill. "We have unearthed nine graves that were made using pieces of cocchiopesto from the Trajanic baths," says Segala. "We have also found traces of agricultural activities, mostly vineyards, orchards, and vegetable gardens, that have damaged the skeletons."

In addition, a team led by Maria Antonietta Tomei, has found new remains of the palace, including the main entertaining and dining spaces, on the nearby Palatine Hill. In 2009 she identified a circular structure that is likely one of the 12-foot-wide supporting pillars of the round dining room described by Suetonius.



Since the Renaissance, holes have been cut into the Domus Aurea's ceiling so that people might descend inside to see its spectacular decorations, such as those in the Room of the Golden Vaults (top left), and as part of the construction of a park (top right) in the 1930s. These holes have allowed water and roots to infiltrate the palace and damage both the structure and the frescoes below. On the Palatine Hill, archaeologists discovered part of the Domus Transitoria (above), the first palace built by Nero, which was destroyed in the fire of A.D. 64 and replaced by the Domus Aurea.



The Domus Aurea's painted walls and ceilings, including those of the Great Cryptoporticus (above) and Room 118 (right), were a source of inspiration for the Renaissance artists who were among the first people to see them in nearly 1,500 years.

Filippi's team has further documented the facade of the columned portico that once stretched almost 800 feet and opened onto the artificial lake, according to archaeologist Ida Sciortino of the Italian Ministry of Heritage and Cultural Activities and Tourism. "To restore its original appearance we have to imagine a monument that's now missing some of its essential components," says Filippi. "Brickwork that once covered the walls' cement core is easily reusable and has been removed over the centuries. This has not only thinned the walls, but also deprived them of proper support. Thus, for structural reasons, we are reconstructing the walls with bricks identical to those used in Nero's time."

SCHOLARS ARE CURRENTLY working not only to explore but also to conserve the Domus Aurea and its ornamentation, removing salts, mineral deposits, fungal growths, and pollutants that are destroying the frescoes that still cover more than 300,000 square feet—the area of 30 Sistine Chapels. They are also trying to reattach the topmost painted layers of the frescoes to the underlying preparatory surfaces from which they have separated. For Mariarosaria Barbera, former archaeological superintendent of Rome, the work on the Domus Aurea, which will likely not be completed until 2018, is



crucial. "The Domus Aurea, a country villa in the urban heart of the empire, is an original experiment to integrate the city and nature," she says. "It represents an attempt to import the refined architecture of Alexandria to Rome, and to give the city the appearance of a lavish eastern capital, which it would take on in the following centuries. We are experimenting with ways to revive Severus and Celer's intentions, and to recover the lost relationship between the green of the Oppian Hill and the architecture within it. It's a tremendous challenge." ■

Federico Gurgone is a journalist based in Rome.



Mexico's Enigmatic Figurines



At the University of Tulsa's Gilcrease Museum, archaeologists Robert Pickering and Cheryl Smallwood-Roberts use a medical endoscope to help determine the authenticity of ceramic figurines from the western Mexican state of Nayarit. A 2,000-year-old Nayarit figure of a musician (right) plays a tortoiseshell instrument with a deer antler rasp.

Until now, some of Mesoamerica's most intriguing artifacts have been much admired, but little understood

by **ERIC A. POWELL**

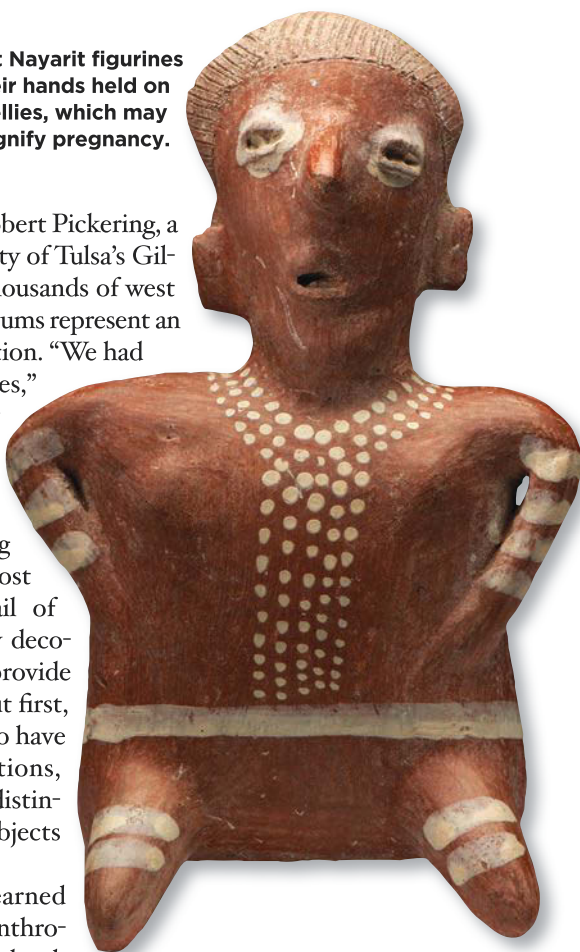
THE CHANCES ARE GOOD that your local museum has a collection of idiosyncratic ancient ceramic figurines from western Mexico. They might depict warriors, musicians, ballplayers, families, or even small dogs. These eccentric artifacts first caught the public's imagination in the 1930s, when the artists Frida Kahlo and Diego Rivera began collecting them. Looted from ancient graves in the west Mexican states of Nayarit, Jalisco, and Colima, they were then believed to have been made by the Tarascans, contemporaries of the Aztecs. Kahlo and Rivera regarded the objects as one of the highest expressions of pre-Columbian art, and, as the larger world became familiar with them, art collectors, Mexicans and Californians in particular, drove up prices, leading to rampant looting in west Mexico. Eventually fakes began flooding the market and made their way into both private and museum collections. By the 1960s, their popularity was such that a large set amassed by the actor Vincent Price was even featured in a magazine advertisement for Kahlua, the coffee-flavored liqueur. By that time, archaeologists had determined they were not made by the Tarascans, but by a 2,000-year-old people they dubbed the Shaft Tomb Culture, after the shape of the tombs in which the figurines were buried.

Though they came to be considered icons of ancient west Mexico, the real meaning of the figures remained elusive, in large part because so many had been divorced from their original archaeological contexts. But in the last two decades, scholars have used new technologies to study the figurines in museum collections, striving to decode their messages. Together with archaeologists excavating Shaft Tomb Culture sites, they have gained new insights not only into the figurines, but into the lives of the ancient people who made them.

Two stylistically different Nayarit figurines both depict women with their hands held on the sides of their bellies, which may signify pregnancy.

FOR ARCHAEOLOGIST Robert Pickering, a curator at the University of Tulsa's Gilcrease Museum, the thousands of west Mexican figures held by museums represent an untapped source of information. "We had all these wonderful figurines," says Pickering, "but they had been wrenched from context, and many thought there was no research value in them." Instead, Pickering believes they carry an almost snapshot-like level of detail of dress, adornment, and body decoration, and that they might provide clues to ancient behavior. But first, given that fakes are known to have saturated museum collections, Pickering needed a way to distinguish authentic ancient objects from modern frauds.

Calling on skills he learned while working as a forensic anthropologist, Pickering began closely examining the hollow objects with a medical endoscope. Well-meaning curators and conservators in the past had cleaned off the outsides of the figures, removing possible indicators of authenticity. But by looking carefully at the insides, Pickering hoped to find some way to distinguish real artifacts from



counterfeits. His hunch paid off when he made a surprising discovery: Desiccated insect pupae, the immature form between larvae and adults, were still clinging to the inside surfaces of many of the artifacts, and in some cases they could be carbon dated. Of some 1,500 objects he and his colleague Cheryl Smallwood-Roberts studied, around 700 had these telltale remains of ancient insects. Their presence authenticated those figures without a doubt, but their absence didn't necessarily mean the artifacts were fakes. By CT scanning the authentic examples, the researchers could see how they were constructed, and compare them to those without insect pupae. This gave the two a way to smoke out fakes, several of which Pickering was able to find in his own museum collection, including the curious instance of an authentic figurine of a dog wearing a human mask that had been made in modern times.

Once the hard business of determining authenticity was done, Pickering and Smallwood-Roberts could turn to the questions that really interested them: What did the objects depict, and what was their real meaning? They started by recording some 70 variables for each figure,

This authentic ceramic depiction of a dog from the state of Colima bears a human mask that was added in modern times.

including body posture, gender, age, and body decoration, which they used to build a massive database. “We weren’t looking at styles so much as we were analyzing the huge amount of detail that together comprises the meaning of the figurines,” says Pickering.

While scholars in the past had believed the figurines might represent deities, Pickering has another theory. “In much of Mesoamerica, artistic depictions are state portraits of rulers or of state-sanctioned deities,” he says. “But I see these figures as close reflections of life in a way that was not done in the rest of the Mesoamerican world.” It’s possible they were placed in graves to represent the status an individual achieved during life. Pickering points out that one of the most common figures is a woman who is kneeling with her hands on the sides of her belly, which might signify pregnancy. “But this might also indicate something that goes beyond the fact of a pregnancy,” says Pickering. “Perhaps this represents a first pregnancy or the conception of a chief, or somehow commemorates an important marriage.” Depictions of musicians, warriors, or potters could point to the deceased’s main role in society. Whether they represent actual, specific individuals or simply types, the figurines could allow scholars to reconstruct social status in ancient western Mexico in some detail.

Pickering and Smallwood-Roberts are now working with other specialists to analyze residues that appear on some of the objects, especially on those depicted carrying bowls, which might have once held fermented beverages. And they have recently begun using an X-ray fluorescent gun, which allows them to reconstruct pigments that are now invisible to the naked eye. Meanwhile, they are continuing to visit other museums to record information on figurines. Eventually, they hope to build a database of 5,000 objects.

THE WORK OF Pickering and his colleagues at museum collections complements recent discoveries made in the field. In the states of Nayarit and Jalisco, archaeologists have excavated some 60 tombs dating to between 300 B.C. and A.D. 200. Discovering the artifacts in

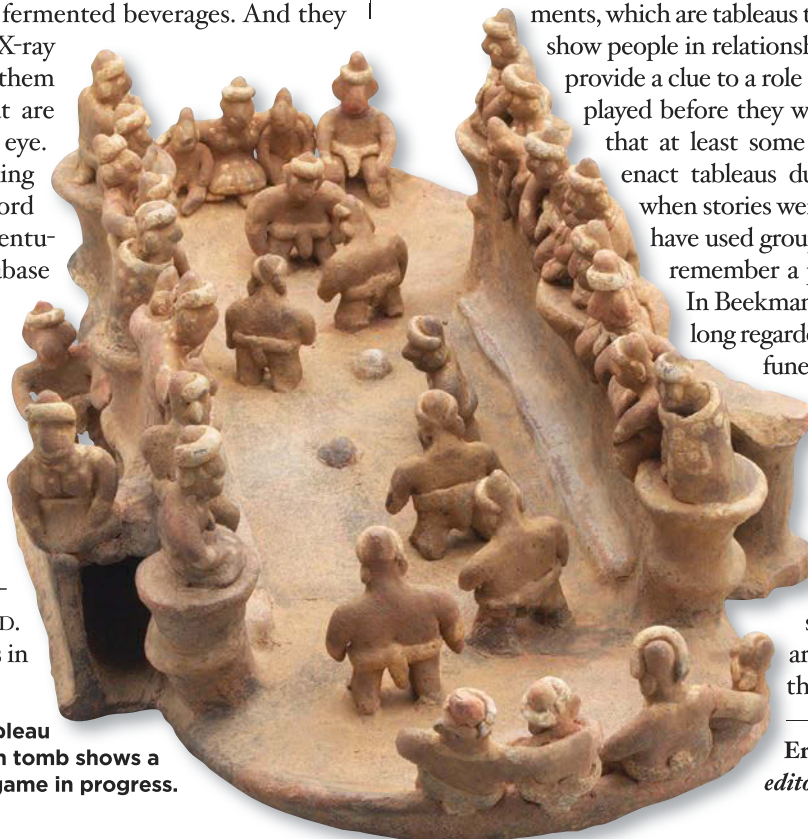
Close observation of paint remnants on this standing figure allowed researchers to determine that it was originally wearing white briefs.



the original context of tombs gives scholars a chance to see what kind of figurines were buried with which individuals. In addition, new perspectives on the objects’ meaning have come from the excavation of other types of sites, such as the remains of homes and ritual centers that were ignored by previous generations of archaeologists. Scholars have also found the remains of figurines at these sites. “As archaeologists, we have to be aware that just because an artifact winds up somewhere doesn’t mean it was made simply to be put there,” says the University of Colorado Denver’s Christopher Beekman, who discovered figurines while excavating a ritual site in Jalisco. Finding them outside of tombs makes Beekman and others think that these artifacts had long lives before they were buried. “Some from tombs have wear on them,” says Beekman. “And that, together with the fact that we’re finding them outside of funeral contexts, suggests that they were originally made for rituals during life, and, like human remains, they were deposited in tombs for eternity. But they weren’t made just to be buried.”

Further insight into why the objects were made may come from comparing them to intricate ceramic dioramas that are also found in western Mexico. Beekman thinks these arrangements, which are tableaux that have a narrative and show people in relationship to each other, might provide a clue to a role the figurines could have played before they were buried. It’s possible that at least some of them were used to enact tableaux during important events when stories were told. A narrator could have used groups of the figures to help remember a particular tale or event.

In Beekman’s view, these objects, so long regarded as individual works of funeral art, could well have been players in vivid dramas told to living people some 2,000 years ago. “All these figurines are small and mobile and are not big panels or stelae,” says Beekman. “This is art that you can do something with.” ■



An ancient ceramic tableau from a western Mexican tomb shows a Mesoamerican ball game in progress.

Eric A. Powell is online editor at *ARCHAEOLOGY*.

Reclaiming Lost Identities

Life and death in a workhouse during Ireland's Great Famine

by TRACI WATSON

TO FIND THE SITE OF the paupers' graveyard in Kilkenny, Ireland, you need to start at the mall: Step into the spacious shopping center just outside the city center. Pass the locals sipping coffee and the stores selling fancy watches and the latest mobile phones. Walk outside the building into an unpaved yard.

On this spot a century and a half ago, nearly a thousand victims of Ireland's Great Famine were consigned to unmarked graves and covered with a

Excavations conducted before construction began on a mall that incorporates the 19th-century Kilkenny Union Workhouse revealed dozens of burial pits dating to the time of the Great Famine.



Among the dead were more than 500 children, including a pair of three- to four-year-olds, buried together in a single adult-sized coffin.

thick layer of earth. Eventually, the burial ground's existence drifted from memory.

Now a new examination of the Kilkenny burial ground and the bodies interred there has begun to paint a picture of these forgotten dead, who were among the million-plus people who died of starvation and disease during the famine that devastated Ireland from 1845 to 1852. The graves and skeletons have revealed evidence of immense suffering, but also of tender care, of treatment of the poor that ranged from shameful to dignified, and of both violence and compassion. At least 970 people were buried at the site, but a list of their names has never been found. Yet the investigation of their bones is rescuing some from the mass of undifferentiated dead and restoring something of their identities. "Every skeleton is unique," says University College Cork bioarchaeologist Jonny Geber, who has spent nearly nine years examining and analyzing the remains, "and every skeleton tells a unique story."

NO ONE EXPECTED TO see the brownish-orange color of old bone in the gravelly soil northeast of what is now the mall. In 2005, Cólín Ó Drisceoil, managing director of the firm Kilkenny Archaeology, was monitoring excavations taking place before the city's new shopping center began construction, as required by Irish law. It was October 26, "a day that I will never forget," he says. A mechanical digger's blade bit into the ground, and Ó Drisceoil spotted human skulls on the edge of the cut. He could immediately see that there were large numbers of dead. He halted construction at once.

By June 2006, archaeologists had uncovered 63 burial pits, most holding one to two dozen skeletons. All were packed into an area the size of a soccer field. The close spacing suggests, says Geber, that each pit was filled with corpses and covered with soil before the next one was opened. Archival research later revealed that the skeletons had been buried between 1847 and 1851. After Margaret Gowen & Co., the archaeological firm hired by the mall's developer, excavated the graves, construction resumed. The consultants submitted their reports and moved on. Only the skeletons remained to explain what had happened, with only Geber left to tell their story.

The discovery of an unknown burial ground is "very, very strange," Ó Drisceoil says. Most Irish burial grounds, he explains, are memorialized by a place name, if not by a marker, and remembered in folk knowledge. But this graveyard had been utterly forgotten. Highly detailed nineteenth-century maps of the area do not depict it, and locals do not recall



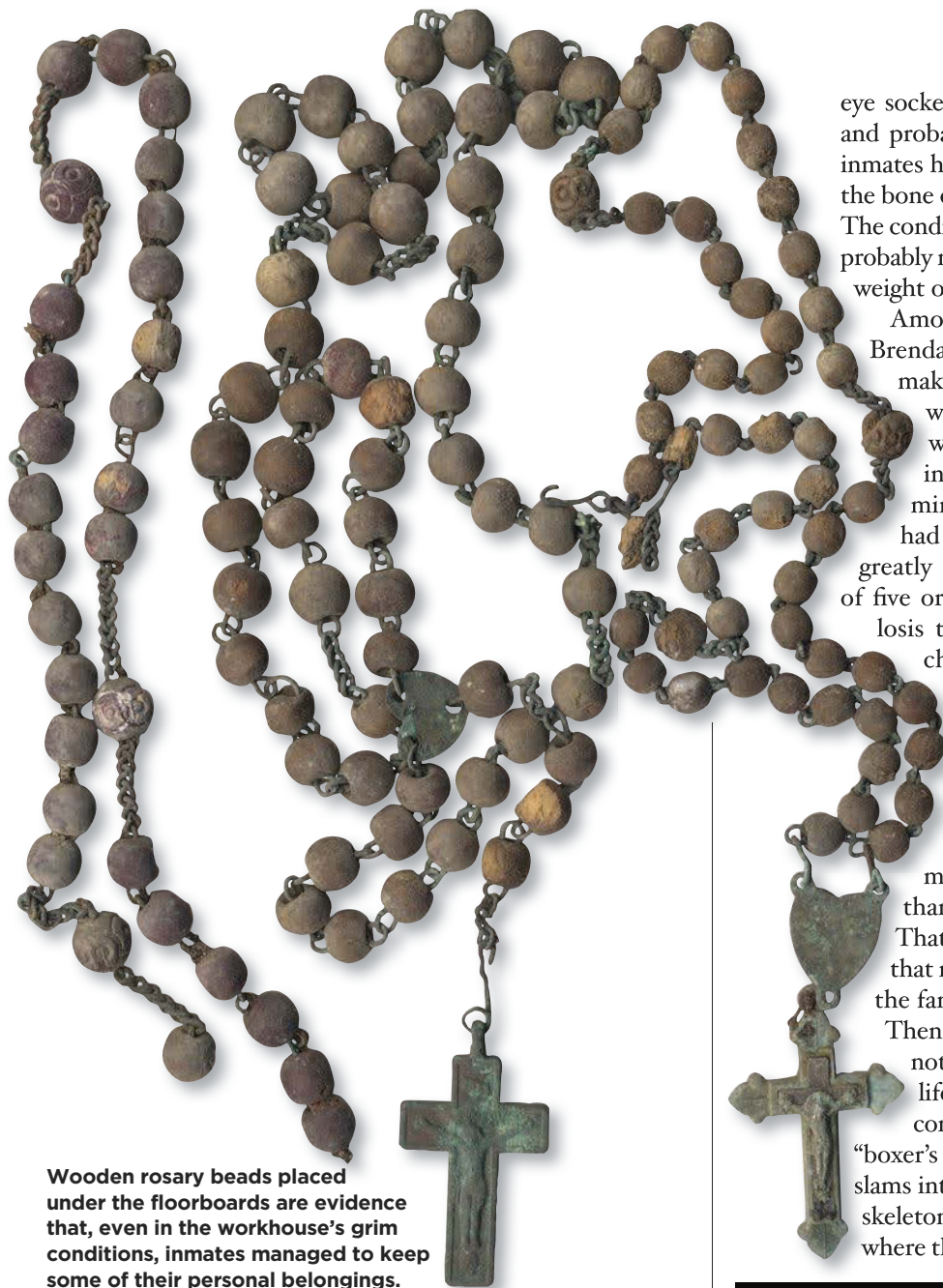
Hundreds of adults living in the workhouse, including this man between 18 and 25 years old, fell victim to disease and starvation and were buried in the long-forgotten graveyard.

it. Records Geber found in Kilkenny's archives and Ireland's National Library reveal one possible explanation as to why: Church officials, for reasons unknown, never consecrated the site, as was customary for a space intended for burial. In what seems a deliberate campaign to eradicate all signs of the graves, Ó Drisceoil says, they were capped with a thick layer of clay just after interment. "Any evidence that that graveyard had ever existed was obliterated," says archaeologist Brenda O'Meara, who directed the excavation. "Any knowledge of it was pushed aside."

The full story lies in the massive building that now houses part of the mall—the former Kilkenny Union Workhouse, a notorious shelter of last resort that opened in 1842 to serve as a bare-bones homeless shelter for local orphans, lunatics, and paupers. Kilkenny's workhouse was one of Ireland's largest, but it could not cope with the onslaught of starving families who flocked there during the famine in search of food and shelter. Newspapers record the death of 68 residents of the workhouse and its hospital

in a single week in April 1847, when typhus was raging in Kilkenny. In the famine's next-to-last year, more than 4,300 people jammed the workhouse, which had been built to hold only 1,300, and various overflow buildings. Overcrowding helped fuel lethal outbreaks of contagious diseases. According to accounts Geber found in workhouse "minute books" and local newspapers, many who died while living in the workhouse during the famine were interred in the mass pits discovered during mall construction. There was no place else, Geber says—Kilkenny's other graveyards were filled to overflowing at the famine's peak.

The Great Famine was set in motion when a virulent potato blight jumped from elsewhere in Europe to Ireland in 1845. Thriving potato fields turned into putrid expanses of rotting vegetation, and even stored potatoes became too slimy to eat. The result, in a country where nearly 40 percent of the population routinely lived almost entirely on potatoes, was catastrophic. Starving people were soon reduced to chewing grass and seaweed. Each village was "but a theatre for famine, disease, and death," said an 1847 edition of *The Cork Examiner*. Even today, Ireland has not regained its pre-famine population of some 8.5 million. Though relatively prosperous in comparison to the west, Kilkenny, in the southeast, wasn't spared.



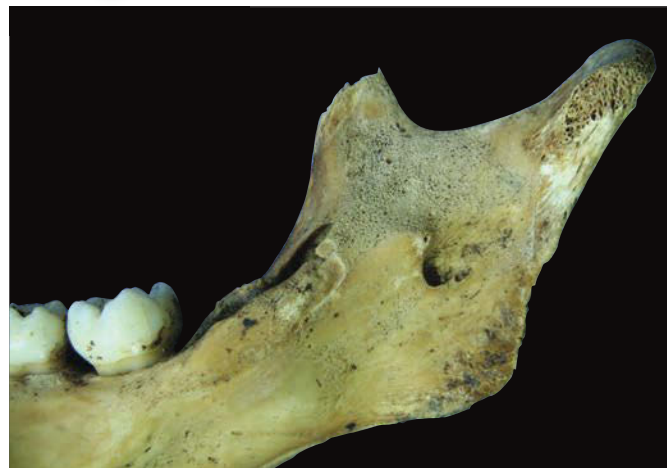
Wooden rosary beads placed under the floorboards are evidence that, even in the workhouse's grim conditions, inmates managed to keep some of their personal belongings.

Geber spent evenings and weekends scrutinizing and measuring the skeletons, trying to wring every last bit of data from the bones before they were reburied to create a narrative of what happened in the Kilkenny workhouse during these years. No other large famine-era burial ground has been excavated, and he was eager to find out what the remains conveyed about the lives of people who experienced one of Ireland's deadliest catastrophes. He learned, for example, that for many workhouse residents, not surprisingly, death followed a course of terrible suffering. Half the skeletons he studied bear patches of spongy bone in the jaw or other signs of scurvy, a painful disease resulting from lack of vitamin C that can cause bleeding from the gums and makes walking an agony. One man in his 40s had a case of syphilis more advanced than any case Geber could find in the medical literature. What should have been the man's forehead was a gaping hole, and part of his

eye socket was gone. He would have been insane and probably blind. A number of the workhouse inmates had endured osteomyelitis, an infection in the bone cavity that erupts through the bone itself. The condition is extremely painful, Geber says, and probably made it impossible for sufferers to bear any weight on the affected limb.

Among the most poignant skeletons, says Brenda O'Meara, were those of children, who make up more than half the burials. In the workhouse, children over the age of two were taken from their mothers and placed in a boys' or girls' ward. "They stick in your mind because you know that their families had been split up," she says. Many suffered greatly during their brief lives. One youngster of five or six had such a severe case of tuberculosis that the disease had eaten away at the child's lower jaw, and some children had deformed limb bones probably related to rickets, a vitamin D deficiency that weakens bones. Victorian children were often shorter than children are now at the same age, but the Kilkenny Union Workhouse's infants between six and 12 months old were even smaller for their ages than older children buried in the graveyard. That and other evidence, Geber says, suggests that mothers of the children born there during the famine suffered from malnutrition.

Then there are the telltale signs that speak not to specific afflictions, but to a way of life. Several skeletons show signs of violent conflict, including one man with a right-hand "boxer's fracture," which is sustained when a fist slams into a hard surface. Almost half of the adult skeletons have teeth marred by round notches where the stem of a clay pipe once rested, accord-



The jawbone of a three-year-old found in the workhouse cemetery shows signs of scurvy, a vitamin C deficiency that became common during the famine.

ing to Geber. One man's teeth are grooved from habitual gripping of a metal implement, probably a pin. His right shoulder bears signs of overuse, his tailbone the hallmarks of sitting too long with crossed legs. To Geber, the marks on his teeth and bones indicate the man was probably a worker in Kilkenny's textile industry. The industry faltered before the famine, and the man ended his life in the workhouse. "You're looking at the people who experienced these horrors," Ó Drisceoil says. "Their stories are told on the tracks of their bones."

CERTAINLY THE SKELETONS tell of the misery of poverty, but they also testify to efforts to minister to the poor. The tubercular child and the syphilitic man must have been nursed to survive as long as they did, considering the severity of their conditions at the time of their deaths, Geber explains. Likewise, analysis of the teeth of three children buried in the Kilkenny graves shows they regularly ate corn just before they died. The Irish consumed little corn until the government began importing American-grown maize for famine relief in 1846. Some of that corn made its way into the bowls of inmates at Kilkenny's workhouse, according to the University of Bradford's Julia Beaumont, the lead author of the tooth-analysis study. "The workhouses have a bad reputation, but if you went into a workhouse, you were fed and treated with some respect in the most awful of circumstances," she says.

Although Kilkenny's workhouse may not have kept people alive for long, in death it did appear to offer some degree of dignity. A decent burial was, at the time, both highly valued and rare. Across Ireland during the famine, corpses were unceremoniously buried without even a wooden box to lie in. But lozenge-shaped stains in the soil, the result of decaying wood, and the presence of nails show that nearly all, if not all, Kilkenny workhouse inmates were buried in proper coffins. "There were none of those stereotypical false-bottomed coffins," O'Meara says. "And the bodies weren't thrown in. They were very carefully laid in." Rosary beads and finger rings were among the few objects buried with the dead, who would have been stripped of all possessions when they entered the workhouse. Inside the building itself, researchers found combs and wooden toys secreted under the floor, probably cached for safekeeping, Ó Drisceoil says.

There are also hints that a few people faced a treatment after death that would have horrified them far more than a burial in a reusable coffin. Geber found two skeletons whose skulls had been partially sliced open, as if someone had started the job of exposing the brain but never finished. There

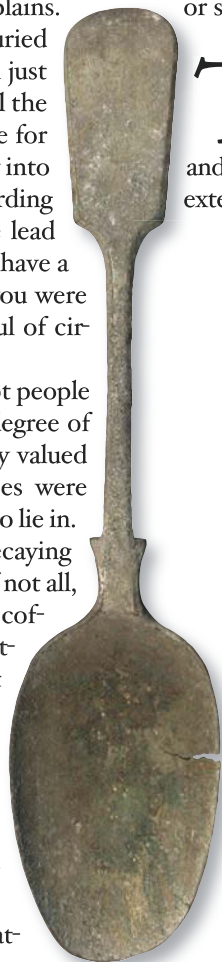
The skull of a man in his 30s or 40s who suffered from an advanced case of syphilis was found in one of the burial pits.



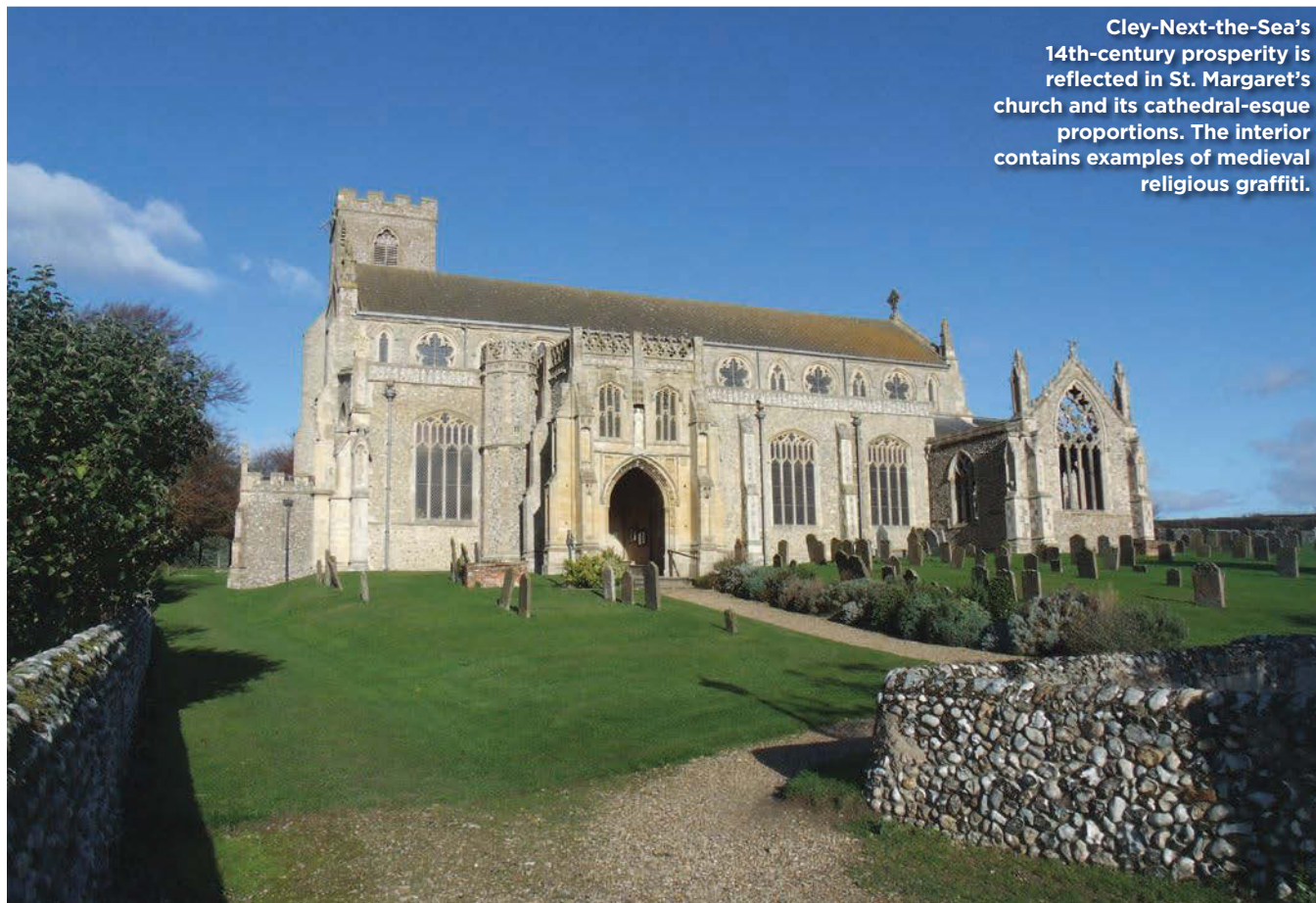
are no marks on any other bones belonging to those two skeletons, as would be expected if the bodies had been autopsied. Geber's best guess is that doctors cut into the corpses either for self-education or, perhaps, out of pure curiosity. "It's a heartbreaking thing to consider," he says. "Dissection was considered post-mortem punishment for criminals. A lot of the [workhouse] inmates probably would've been terribly upset at the thought that they might be dissected afterwards." In the future, Geber hopes to find out how these cases compare to other burials in Britain in the same era. He also plans to explore whether the death rate for children in the workhouse was linked to either overcrowding or some other factor.

THE WORKHOUSE BECAME a hospital in the 1920s and eventually fell into disuse. A decade ago, it was transformed into a complex of cheery shops and community rooms. "It's a space that works, to a certain extent, as long as you can turn your back on the horrors that must've happened there in the nineteenth century," Ó Drisceoil says. In a 2010 ceremony attended by a large crowd that included local clergy and Kilkenny's mayor, the skeletons from the burial pits were reinterred in a crypt in front of the mall. A plaque explains what lies beneath the large limestone slab atop the crypt, but no signs on the former burial ground, which is not open to the public, reveal what happened there. Within the next few years the mall will be enlarged to cover the site of the original burial pits. Although the mall's manager is keen to have a museum concerning what happened during the years of the famine on the site, no such project is planned. "You can be absolutely certain that there are people walking around the city today who are the direct descendants of the people who were buried at the Kilkenny workhouse," says Ó Drisceoil, who favors more recognition of what happened there. "There's no point in trying to brush it over and pretend it didn't happen. It did, and it's a very, very important story that needs to be told." ■

A spoon, a child's top, a toy paddle, and a lice comb were all discovered hidden under the floorboards of the Kilkenny Union Workhouse, perhaps for safekeeping.



Cley-Next-the-Sea's 14th-century prosperity is reflected in St. Margaret's church and its cathedral-esque proportions. The interior contains examples of medieval religious graffiti.



Writing on the Church Wall

Graffiti from the Middle Ages provides insight into personal expressions of faith in medieval England

by KATE RAVILIOUS

Imagine walking into your local church, pulling a penknife from your pocket, and scratching a little drawing into the wall: a geometric design, a drawing of a boat, even a few meaningful words. Today that would be sacrilege, but a new survey of the walls of medieval churches in England is revealing that many of them are covered in riots of graffiti, scratched into what were once boldly colored walls. Furthermore, the practice appears to have been condoned, and sometimes even encouraged,

by Church authorities. The finds are changing the perception of how medieval worshippers viewed religion and interacted with their churches.

Cley-Next-the-Sea, on the north coast of Norfolk in eastern England, is a well-heeled tourist village of ancient flint-walled houses and narrow streets. Situated far from England's highways, it draws visitors—but only committed ones—year-round. Its harbor silted up in the seventeenth century, so the village is now separated from the sea by spectacular salt marshes that draw

many bird-watchers. But 700 years ago, Cley-Next-the-Sea was at the heart of one of the busiest ports in England, the Glaven Port, where grain, malt, fish, spices, coal, cloth, barley, and oats were exported and imported. That period of prominence explains why the seemingly insignificant village sports a glorious church of cathedral-esque proportions.

As the large wooden door shuts behind him, Matthew Champion, project director of the



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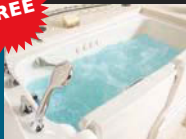
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Panels on the octagonal font in the nave of St. Margaret's church have medieval markings thought to bring luck or protect from evil.

Norfolk and Suffolk Medieval Graffiti Surveys, proceeds to the ornate octagonal font that dominates one end of the nave of St. Margaret's church. Its elaborately carved stone panels depict religious scenes, including a baptism and the ordination of a priest. Tiny fragments of paint in the crevices confirm that the font was brightly decorated in medieval times. "The blue color was made from lapis lazuli pigment," Champion says, "which was very exotic and expensive then."

Approaching what appears to be a bare patch of stone on one of the font's panels, Champion illuminates it with his flashlight—at first from the front, and then from the side. As the panel is bathed in raking light, patterns come into view: a series of perfect circles, filled with six-petaled flower patterns, scratched into the stone. To twenty-first century eyes, the scratched designs seem incongruous with the magnificent setting, but Champion sees more than ancient graffiti. He moves quickly to the north side of the church and, this time, sweeps the beam of his flashlight down a column, where the

raking light reveals repeats of this same precise geometric design. "In the past, fonts were usually situated on the north side of churches, close to the 'Devil's door' [a door on the north, or 'heathen,' side of a church],

and we find concentrations of these designs on and around the area where the font would have been," he explains.

In 2008, Champion was asked to manage a conservation program of medieval wall paintings at Lakenheath church in Suffolk. It was when he closely inspected the paintings that he first observed marks scratched into the paint: previously unnoticed graffiti. "I was a bit nonplussed to begin with," he says. He began to dig around in the literature and realized that no one had thoroughly documented such medieval graffiti. Perhaps this was because of its rarity, he thought. So he selected another medieval church at random—All Saints' in Litcham, Norfolk—and inspected the walls. "I started to shine my torch and realized there were hundreds and hundreds of markings," he says. "They are almost invisible unless you shine light on them from the side, and I think they simply hadn't been noticed before."

Champion was hooked, and in 2010 he started a community



Circular floral designs (highlighted here to show the shape clearly) are the most common motif in medieval church graffiti, and were thought to trap malevolent spirits.



Medieval women carried small shears, which they may have used to incise the circular graffiti designs.

archaeology project, using teams of volunteers to systematically record the graffiti in the County of Norfolk's medieval churches. With ordinary flashlights and cameras, volunteers have mapped the wall markings in half of Norfolk's 650 or so medieval churches. To date, they have uncovered more than 28,000 inscriptions. In 2014, Champion established an equivalent survey in the neighboring County of Suffolk, with similar results. Now Champion has surveys springing up all over the country, and the findings, along with reports from other countries, suggest that medieval religious graffiti was a widespread phenomenon. "I've seen the same kind of symbols cropping up in churches in Norway, Germany, Spain, and even Malta," he says. "It seems that graffiti was normal and accepted everywhere the medieval Christian Church got to." With these data, and the promise of more, Champion has been able to provide some context and interpretation for the symbols the volunteers are finding. "Everyone from the lord of the manor to the lowliest commoner was making these marks," says Champion.

The circular floral designs, for example, turn out to be the most common motif, with several thousand recorded in Norfolk and Suffolk alone. The majority are quite small—less than four inches across—and are precise enough that they must have been drawn with compasses or other tools. "Originally, we thought these might have been created by the masons, perhaps to teach their apprentices the basics of geometry, or to create a guide for themselves," Champion says. Indeed, some of the larger compass-

drawn designs are probably exactly that, but the small designs that Champion has found peppered around fonts would have been impossible to draw with the giant compasses that masons used. Rather, the clustering of the symbol on and around fonts is a crucial clue. Traditionally, baptism ceremonies were meant to cast out the devil, and Champion thinks that the marks served as ritual protection, brought luck, and protected the person being baptized from evil. "Christianity was not the warm and fluffy religion that it is today," he says. "People believed in the power of evil, and would do everything they could to ward off the ill forces that lurked outside the church door." Designs like this, intricate and mazelike, were thought to trap malevolent spirits, which would follow the lines and be unable to find their way back out.

Mark Gardiner, a medieval graffiti expert from Queen's University Belfast in Northern Ireland, agrees that the symbols were probably intended to ward off evil. "We also find an abundance of these kind of marks inside medieval houses, often close to fireplaces. This coincides with the interest in and fear of witches," he says, "which grew markedly during the second half of the sixteenth century."

So who could have made these marks? Compasses from this time are exceedingly rare in the archaeological record. Champion speculates that they could have been made using the little shears that women tended to carry around with them. "The shears would be about the right size, so we think it could have been predominately women making these protective symbols around the font," he says.



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St. Nicholas' in Blakeney, which was located at the harbor mouth of a bustling medieval port, is the site of much intricately drawn graffiti depicting ships.

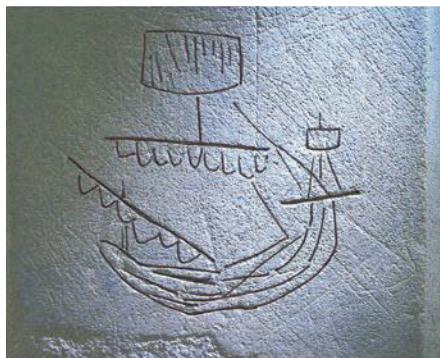
At St. Nicholas' church in Blakeney, the village that sat at the harbor mouth of the Glaven Port, Champion squeezes past some wooden paneling to view part of a stone column normally hidden from view. Practiced in applying the right amount of raking light to make the designs emerge from the stonework, Champion flourishes his flashlight to reveal ship after ship etched at eye level and below—more than 30 in all, ranging in size from two to 12 inches. Every ship is intricately drawn, with details such as anchors, rigging, and flags. Like the font at St. Margaret's, the column holds minuscule flecks of paint, which confirm that the ships, faint today, would have once stood out boldly on a colored background.

They reflect another side of life in a medieval port—the uncertainty that comes with a culture built on the hazards of the sea. “Most of them are single-masted cogs, which were typical trading ships in the late fourteenth and early fifteenth centuries,” Champion says. By analyzing the types of ships depicted, he concluded that they were all drawn over a period of 200 to 300 years, and must have been tolerated by the priests of the day. “They could easily have repainted the column to cover them up,” he says, “but they didn’t.”

It will never be known exactly who drew the ships, but it is no accident that they are clustered around the side altar of St. Nicholas—patron saint of those in peril upon the sea.

“I think they were like little prayers made solid in stone, perhaps thanks for a voyage safely undertaken, a prayer for a voyage yet to come, or maybe a plea for a ship long overdue [to return to port],” he says. According to documentary records, the Glaven Port usually had 50 to 60 ships that would have considered the harbor home, and, on average, one ship was lost at sea every two or three years. “Some of these ships were taking people on pilgrimage, and when one ship was lost, that could be as many as 250 people gone in one go,” says Champion.

Ship etchings are no surprise in a church so closely tied to the sea, but such pieces weren’t only found in coastal churches. Champion and



Ship graffiti from St. Nicolas' church, used as prayers for safe voyages, depict late 14th- and early 15th-century vessel designs.

his volunteers have found them as far inland as Leicestershire, a good 50 miles from the coast. "This inland ship graffiti is quite possibly associated with pilgrimage, with people traveling to or from continental shrines," he explains.

The church in Steeple Bumpstead, a small village in eastern England, doesn't have etchings of ships on its walls, but rather more stark, literal

expressions of anxiety. "God help us, God help us, God help us," reads an inscription dated 1348. "It is the scariest inscription I've ever seen and sends shivers down my spine," says Champion, who documented a peak in inscriptions like this in the middle of the fourteenth century, when the Black Death swept across Europe. People were terrified of the mysterious disease, which wiped out entire villages and killed nearly half the European population over four

years, and Steeple Bumpstead was particularly hard-hit. Meanwhile, in All Saints' and St. Andrew's in Kingston, near Cambridge, three names—Cateryn, Jane, and Amee—are inscribed, thought to belong to three children from one family who died during the 1515 plague outbreak.

Written records clearly state that churches at the time were always locked, except during services. This reinforces the idea that the graffiti was made during Church services,



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At St. Mary's in Wiveton, church graffiti depicts the crests of a patron family.

condoned, and intended to be seen. "These were not the furtive scratchings of people making illicit messages, but were part of the ritualistic activity, which seems to have been quite widespread in the late Middle Ages," Gardiner says. Indeed, some of the graffiti may have even been part of ceremonies. In many churches Champion found crosses scratched around the doors and in porch areas. "In medieval times documents and agreements were often signed in the porch, and it may have been that scratching a cross into the wall was a way of making an oath," he says.

Another form of Church ritual—the making of donations—was the subject of still more graffiti. In Wiveton, near Blakeney, a church column



Crosses (highlighted) found carved in stone around church porches are thought to have been a way of sealing important agreements.

(continued on page 62)

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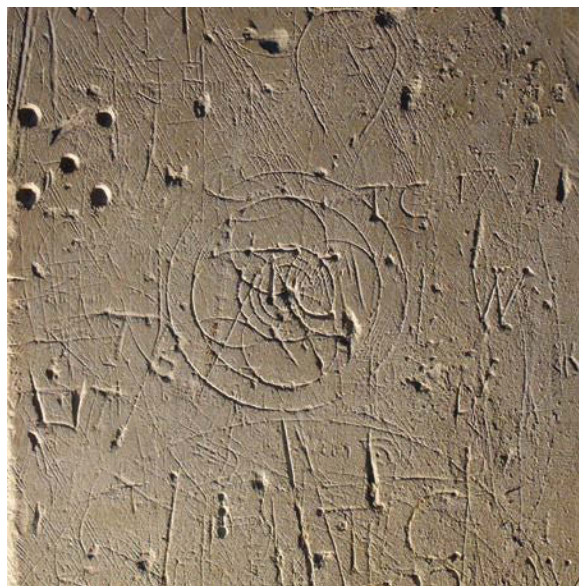
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(continued from page 58)

sports a strange angular symbol that also appears on a crest above the “parish chest,” a huge locked trunk, located on the other side of the church, used to hold the parish’s valuables. In Wiveton, the chest had been donated by a local businessman named Raulf Greneway. Greneway’s mark was memorialized on the plaque, but then was also repeated as graffiti on the column, perhaps as a symbol of the aspirations of the family or pride at their rise in society. “This man was a working man,” explains Champion, “who had done well for himself, and the mark on his crest is a kind of heraldry or guild mark for the working man, something that was passed down through the family after he had gone. It was their way of preserving the memory of their family for posterity.” Similar merchant’s marks have turned up in the surveys across the country, though in most cases it has been impossible to trace the families to whom they belong.

And finally, some churches sport inscriptions made by stonemasons and architects for purely functional



purposes. At Binham Priory, for example, sweeping lines represent working architectural drawings dating to the 1240s. The architect in this case was experimenting with a window design from France—called bar tracery—that the English were only beginning to employ at the time. In fact, the drawings have helped settle just how the church’s large arched windows, long since collapsed, had been conceived. “It was totally revo-

Somewhat obscured by more recent graffiti, architectural drawings dating to 1240 depict the unusual window style at Binham Priory.

lutionary designwise,” says Champion, “and not the gradual progression in architecture we might have expected.” Taken together, all this graffiti provides Champion, his volunteers, and a visiting writer with a strong sense of connection with the people who scratched into church

walls hundreds of years ago.

The daisy-wheel patterns from St. Margaret’s transmit an aura of fear, protectiveness, and hope for the best possible start in life. Meanwhile, the exquisite little ships at Blakeney exude excitement but also terror about the unknown. And the merchant’s marks represent the desire for a person or family to be remembered for posterity. Prior to the Protestant Reformation, which began in 1529 in England, people’s relationships with God were officially mediated via priests or the Pope. “For me, the graffiti represents the religion and spirituality of ordinary individual people,” Champion says. “It was their opportunity to communicate with God without needing the interaction of a priest.” Following the Reformation, the amount of church graffiti declines. “After the Reformation, religion became more personal—you could read your own Bible for example—so perhaps people didn’t feel the need to make their own individual mark on the church wall any more.”

At a time when writing materials were expensive and many people were illiterate, it seems that church walls were an accepted place to express one’s deepest hopes and fears. ■

Kate Ravilious is a science journalist based in York, United Kingdom.



The arched Gothic windows at Binham Priory—long since collapsed and replaced with brick—were depicted in graffiti in the church, settling the matter of how they were designed.

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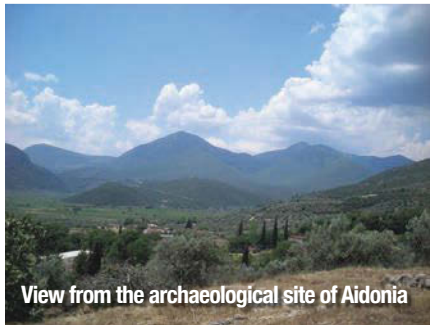


Dispatches from the AIA

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EXCAVATE, EDUCATE, ADVOCATE

Site Preservation Grants Awarded to Projects in Greece and Chile



View from the archaeological site of Aidonia



Interior of a tomb at Aidonia



Evidence of looting at Aidonia

THE ARCHAEOLOGICAL Institute of America awarded its most recent Site Preservation Grants to the Tombs of Aidonia Preservation, Heritage, and Exploration Synergasia (TAPHOS) in Greece and to the Project for the Preservation of the Pukara and Chullpas of Nama in Chile.

The archaeological site of Aidonia, located in southern Corinthia, Greece, includes several Late Bronze Age cemeteries dating from the fifteenth to thirteenth centuries B.C. One of these cemeteries, discovered in the late 1970s, includes at least 20 high-quality tombs comparable in design and construction to elite tombs uncovered at Mycenae. The Aidonia tombs contained a large quantity of burial goods and furnishings, including the famous “Aidonia Treasure.” Unfortunately, a majority of the tombs were looted in the 1970s. While some of the stolen materials have been returned to Greece, looting at the site has resumed and intensified in recent years.

The TAPHOS project, a cooperative effort between the University of California, Berkeley’s Nemea Center for Classical Archaeology (NCCA)

and the Korinthian Ephorate of Antiquities of the Greek Ministry of Culture (EFAKor), under the direction of Kim Shelton (NCCA) and Giota Kassimi (EFAKor), is designing and implementing a program that will physically secure the site while providing education and outreach to the local community and beyond in an effort to increase awareness of the material destruction and loss of knowledge caused by looting. Shelton’s team will use the AIA grant to create a visitors’ center with exhibit and teaching spaces, design the materials for it, establish pathways and signage for visiting the site, train local staff, and establish and implement protocols that will provide long-term security.

The archaeological site of Nama, located in the Tarapacá Sierra in Chile, contains the remains of a village with stone structures (*pukara*) and associated adobe funerary towers (*chullpas*) typical of the Late Intermediate Period (A.D. 950–1450) in the South Central Andes. Although the pukaras and chullpas are a vital part of the identity of both the ancient people that lived in the area and the modern Aymara

community, the structures are deteriorating due to exposure and neglect. Current use of the area for agriculture and irrigation, along with the growth and development of the modern town of Nama, is adding to the threats to the site’s preservation.

Under the direction of Mauricio Uribe Rodríguez, associate professor in the Department of Anthropology at the University of Chile in Santiago, the AIA grant will be used to create, in consultation with the local community, a program that will conserve and protect the archaeological remains while reconnecting the current residents to their cultural heritage. The effort will include preservation of the pukaras and chullpas, creation of paths within the site, community workshops that inform local residents of the threats to the site and offer strategies for addressing them, the launch of a local heritage office managed by the Aymara Community of Nama, the development of an archive for materials related to Nama and the site, and the dissemination of information about the site and its significance to schools, local community members, and visitors.

Stone remains of a residential structure at Nama



Agricultural terrace at the base of a pukara



Since 2008, the AIA Site Preservation Program has given grants and awards to 28 projects around the world. While these projects vary in terms of scope, cost, and cultural region, they have one important similarity—each project combines conservation with robust outreach and education initiatives that inform people about the significance of the sites and the need for long-term sustainable preservation. To read more about the AIA Site Preservation Program and the projects it supports, visit archaeological.org/sitepreservation.

120th Year of AIA Lecture Program Gets Under Way in September

THE 120TH YEAR OF the AIA Lecture Program begins in September, when it will become the Institute's longest-running public outreach effort. Each year the Institute sends outstanding scholars from around the world to present lectures on a wide variety of topics at AIA Local Societies across the United States and Canada. Whether giving a presentation on Kublai Khan's lost fleet, Viking longships, Maya murals, Roman arenas, Stonehenge, or, as in the case of Norton Lecturer Stephanie Dalley, the hanging gardens of Babylon, AIA lecturers bring the world of archaeology vividly to life. As the number of AIA lecturers grows, so does attendance. Last year, more than 26,000 people attended AIA lectures. The lectures are an important benefit provided by the AIA to its members and Local Societies. They are also one of the primary outreach tools employed by many of our Societies to bring archaeology to their communities. For more information and schedules, visit archaeological.org/lectures. The Lecture Program, like most AIA programs, is supported by your gifts. To pledge your support for the program, call 617-353-8709.

International Archaeology Day Is October 17, 2015

INTERNATIONAL ARCHAEOLOGY Day (IAD) is approaching and we invite you to be a part of this rapidly growing global celebration of archaeology. Last year, over 100,000 people participated in IAD events around the world. Host an event or attend one near you. If you do host an event, make sure to join the AIA as a Collaborating Organization and list your event on the IAD calendar. For more information and to find out how you can be a part of IAD 2015, visit archaeologyday.org.



AIA-SCS 117th Joint Annual Meeting, January 2016, in San Francisco



THE ARCHAEOLOGICAL Institute of America (AIA) and the Society for Classical Studies (SCS) invite you to their 117th Joint Annual Meeting, January 6–9, 2016, in San Francisco. The Annual Meeting brings together more than 3,000 professional and vocational archaeologists and classicists from around the world and nearly every state in the United States to share the latest developments from the field. This well-attended conference is the largest and oldest established meeting of archaeologists and classical scholars in North America. The Annual Meeting has grown tre-

mendously over the past decade, not only in attendance, but also in the scope of papers presented, demographics of attendees, and focus on professional development, cultural heritage management, new technologies, and other topics of critical importance to the field. To find out more about the 2016 AIA-SCS Joint Annual Meeting, visit archaeological.org/annualmeeting.

First Bartman Scholarship Recipients Announced

THE AIA'S NEWEST scholarship, established in honor of AIA Past President Elizabeth Bartman, assists graduate students or those who have recently completed a master's degree with the expenses associated with participating in a museum internship either in the United States or abroad.



The first recipients of the Elizabeth Bartman Museum Internship Fund scholarship: Ana Abrunhosa (left) and Sarah Kate McKinney (right)

The AIA Museums and Exhibitions Committee is pleased to announce the first recipients of the Elizabeth Bartman Museum Internship Fund scholarship: Ana Abrunhosa, who received her M.A. (2012) and B.A. (2010) in archaeology from the University of Porto in Portugal, and Sarah Kate McKinney, a graduate student in applied anthropology at Mississippi State University. Each will receive \$2,375 to help cover expenses associated with undertaking a museum internship.

McKinney will spend eight weeks in the Department of Invertebrate Zoology at the National Museum of Natural History at the Smithsonian Institution. She will examine the biology of mussels as she prepares to study the differences between prehistoric and

modern mussel shell assemblages along the upper Tennessee River, and will also curate a large mollusk collection at the museum.

Abrunhosa will intern in Spain at the Museo Arqueológico Regional de la Comunidad de Madrid. She will catalogue a large collection of lithic artifacts from the Pinilla del Valle Middle Paleolithic site and assist with the

Pinilla del Valle summer field campaign of 2015. The internship will give her an opportunity to work directly with materials she plans to use in further Ph.D. research.

The next application deadline for the Elizabeth Bartman Museum Internship Fund is April 1, 2016. To read about this and other AIA funding opportunities, please visit archaeological.org/grants.

Upcoming AIA Funding Opportunities

Each year the AIA offers fellowships and grants for travel, study, and publication to deserving scholars and students. To read more about the scholarships and grants and their application guidelines and requirements, please visit archaeological.org/grants.

Site Preservation Grant to an innovative project that uses outreach and community development alongside direct conservation to sustainably preserve archaeological sites. Deadline: October 15

Graduate Student Travel Award to assist graduate students presenting papers at the AIA Annual Meeting with their travel expenses. Deadline: October 30

Harriet and Leon Pomerance Fellowship to support a project relating to Aegean Bronze Age archaeology. Deadline: November 1

Helen M. Woodruff Fellowship of the AIA and the American Academy in Rome to support a Rome Prize Fellowship for the study of archaeology or classical studies. Deadline: November 1

John R. Coleman Traveling Fellowship to honor the memory of John R. Coleman by supporting travel and study in Italy, the western Mediterranean, or North Africa. Deadline: November 1

Olivia James Traveling Fellowship for travel and study in Greece, Cyprus, the Aegean Islands, Sicily, southern Italy, Asia Minor, or Mesopotamia. Deadline: November 1

The Archaeology of Portugal Fellowship to support projects relating to the archaeology of Portugal. Deadline: November 1

AIA/DAI Exchange Fellowships to encourage and support scholarship on various aspects of archaeology and promote collaboration between North American and German archaeologists. AIA Fellowship for Study in the United States deadline: November 1; DAI Fellowship for Study in Berlin deadline: November 30

Cotsen Excavation Grants to provide excavation support for professional AIA members working around the world. Deadline: November 1

Samuel H. Kress Grants for Research and Publication in Classical Art and Architecture to fund publication preparation, or research leading to publication, undertaken by professional members of the AIA. Deadline: November 1

The AIA Publication Subvention Program for subventions from the AIA's von Bothmer Publication Fund in support of new book-length publications in the field of Greek, Roman, and Etruscan archaeology and art history. Deadline: November 1

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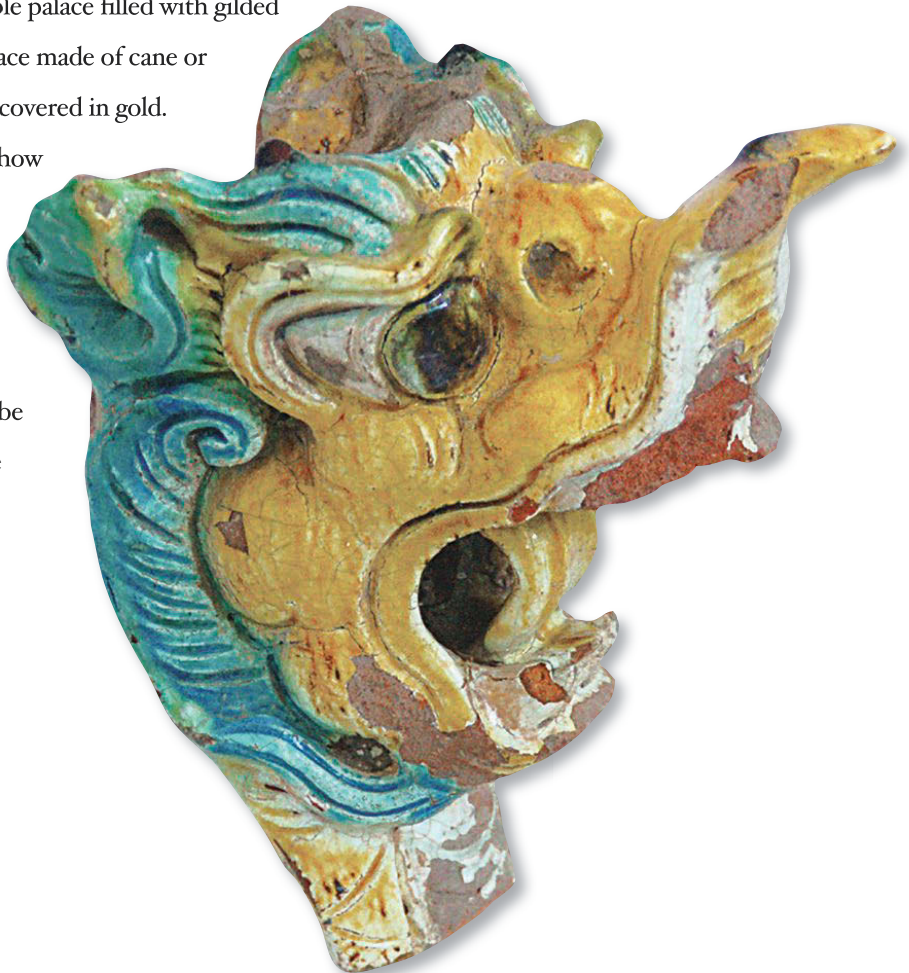
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ARTIFACT

A great empire needs a great capital. In A.D. 1256, the Mongol ruler Kublai Khan, founder of the Yuan Dynasty, instructed his Chinese adviser Liu Bingzhong to design what became his capital city—Xanadu. The legendary site, which covers 12 acres, contains remains of numerous structures, including temples, palaces, city walls, canals, and tombs. The earliest structure known is a type of large, freestanding ceremonial entranceway called a *Que*-tower. As part of the excavations of Xanadu, Mongolian archaeologists uncovered the tower's foundations, pieces of brick and stone from the building, and some of its colorful decoration, including this head of a dragon.

The brightly colored beast once covered the end of a supporting beam. Along with two other similar dragons, colored tiles, figurines of an immortal being, a bird, a fish, and architectural elements decorated with dragon and phoenix motifs, the well-sculpted creature begins to give scholars an idea of what Xanadu might have looked like when Marco Polo visited the capital in 1275. The Venetian explorer describes a wondrous natural landscape complemented by stunning buildings, including a marble palace filled with gilded and painted rooms, and another palace made of cane or bamboo tied together with silk and covered in gold.

Although it can be hard to imagine how the site would have looked in its heyday—before it was destroyed in 1369 and abandoned some 70 years later—artifacts such as the dragon, which the excavators describe as “lifelike and dynamic,” hint at the splendid impression Xanadu would certainly have made.



WHAT IS IT

Corner beam cover

CULTURE

Mongol

DATE

13th–14th century A.D.
(Yuan Dynasty)

MATERIAL

Glazed baked red clay

FOUND

Xanadu, Inner
Mongolia Autonomous
Region

DIMENSIONS

7 inches high



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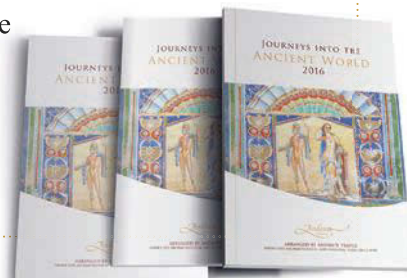
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